March 31, 1958

Paper Trade Journal

- Sulphite Waste Liquor Disposal
- Valve Solves Stock Control Problem
- Superintendents Feature White Water & Fiber Loss Control
- Corn Starches for Surface Sizing
- Measuring Consistency in-the-Pipe

For quality board from buff to deep yellows . . .

Geigy suggests:

in the beater

Direct Yellow 6G
Diphenyl Fast Yellow RLSW Supra
Diphenyl Chlorine Yellow FF Supra Conc 11
Diphenyl Fast Yellow 3GP Supra
Diphenyl Fast Yellow FA Conc
Sun Yellow 3G Extra
Paper Yellow CB Conc 125%
Auramine 000

at the calendar

Tartrazine Extra Conc
Napthol Yellow SNA Conc
Fast Light Yellow 2G
Metanil Yellow VS Conc
Auramine 000

at the coating machine
(for ivory and buff tints)

Irgalite* Yellow 2GP
Diphenyl Chlorine Yellow FF Supra Conc 11

GEIGY technical laboratories are at your service in helping to produce quality board.

*Geigy registered trademark

Geigy Dyestuffs

Division of Geigy Chemical Corporation
Saw Mill River Road
Ardsley, New York

dyestuff makers since 1859

Geigy 200 years Geigy

BRANCH OFFICES: Appleton, Wisc. • New England: Newton Upper Falls, Mass. • Charlotte, N. C. • Chattanooga Chicago • Los Angeles • Philadelphia • Portland, Ore. • Toronto • IN GREAT BRITAIN: The Geigy Co., Ltd., Manchester.

University ...
Att: E B Power
313 N First St.
Ann Arbor, Mich.

SPECIAL . . . for chlorine service

OIC 600-LB. FORGED STEEL, O. S. & Y. VALVES

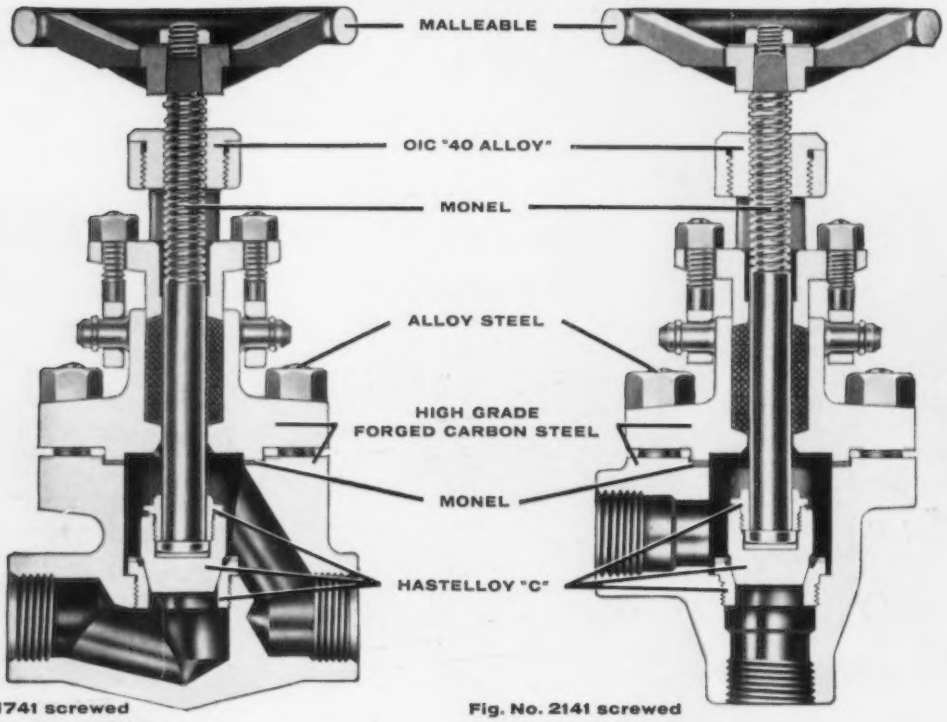


Fig. No. 1741 screwed
Fig. No. 1740 flanged

Fig. No. 2141 screwed
Fig. No. 2140 flanged

Proper design and the correct choice of metals combine in this OIC Forged Steel line to assure adequate strength, safety, and long trouble-free operation on chlorine service.

Hastelloy "C" swivel nut—disc—seat ring—Resist corrosive action of chlorine, increasing service life.

Monel stem—body-bonnet gasket—The monel stem resists corrosion. It is of generous size and accurately machined for ease of operation. The soft monel gasket is ideal for chlorine service.

OIC "40 Alloy" yoke bushing—"40 Alloy" is an aluminum-silicon-bronze which will not corrode, gall or seize. Its use adds to the ease of operation and increases the valve's service life.

High-Grade Forged Carbon Steel pressure parts—Amply proportioned wall thicknesses throughout provide strength and safety.

Alloy Steel Bolting 4 bonnet studs—Of proper size and quality to assure safety and ruggedness at the joint.

Malleable handwheel—Heavy and large, shaped for non-slip gripping.

Packing is resistant to the corrosive action of chlorine. A back seating arrangement permits repacking in a full open position.

A wide seating surface of 30° included angle permits close flow regulation. Each valve is carefully inspected at assembly, and tested at 300 psi air under water.

Write for Bulletin No. 1000, which describes these valves more fully. It also contains information on valves for black, green and white liquor services. Request also Bulletin No. 195, which describes the redesigned OIC line of Forged Steel Gate Valves.

Contact your nearby OIC Distributor for all your valve needs.

OIC
FOUNDED 1883

THE OHIO INJECTOR COMPANY • WADSWORTH, OHIO

VALVES | **FORGED & CAST STEEL, LUBRICATED PLUG, BRONZE & IRON**

Emerson Stainless Steel Plugs guarantee lowest maintenance cost

LOWEST JORDAN PLUG MAINTENANCE COSTS ARE GUARANTEED WITH EMERSON SPECIAL FORMULA STAINLESS STEEL PLUGS. Emerson Plugs last years longer than ordinary plugs and more than pay for themselves by combating acid action and all other types of corrosion encountered in stock refining. Their special formula stainless steel gives greater built-in strength to withstand wear. Freedom from plug erosion and corrosion also means that the danger of stock contamination is eliminated.

Emerson, pioneer of bandless type plug construction, provides further maintenance economy by the special plug design. Dovetailed slots and wood separators support knives along their entire length. Separators absorb impact — prohibit destructive shock to plug body and shaft.

PROTECTS ANY JORDAN PLUG. You can also protect your present plugs against corrosion and wear with Emerson Stainless Steel. Regardless of plug condition, make, size or type, a heavy duty stainless steel jacket can be applied to your present plug by the patented Emerson process.

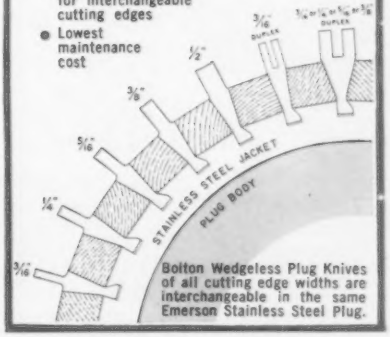
After machining and pre-conditioning steps are completed on your used plug, it is jacketed, machined to close tolerance, and slotted for interchangeable Bolton Wedgeless Plug Knives. New shaft sleeves and stainless steel rings are mounted on both ends with an end plate on the large end for over-all corrosion protection and strength. The plug then undergoes testing for air tightness and is dynamically balanced for the operating speed of your Jordan. The shaft is indicated for straightness. *For further information send for Bulletin No. P-7555. John W. Bolton & Sons Inc. and The Emerson Manufacturing Co. Division, Lawrence, Massachusetts.*

THE PAPERMAKER SAYS:

The ones that are never returned for repairs are the Emerson Stainless Steel Plugs.

They provide:

- Freedom from corrosion, erosion and stock contamination
- Greater built-in strength than ordinary plugs
- Continuous production
- Uniform slotting for interchangeable cutting edges
- Lowest maintenance cost



Bolton Wedgeless Plug Knives of all cutting edge widths are interchangeable in the same Emerson Stainless Steel Plug.

BOLTON EMERSON

TRADE MARK

Filling the Needs of Papermakers: JORDANS • CLAFLINS ® • FILLINGS • PLUGS • STAINLESS PLUG JACKETS • BEATER BARS AND BED PLATES • SHOWER PIPES • SUCTION BOX COVERS • MAGNETIC EQUIPMENT • MACHINE KNIVES.

IN CANADA: Pulp and Paper Mill Accessories, Ltd. Montreal, P. Q.

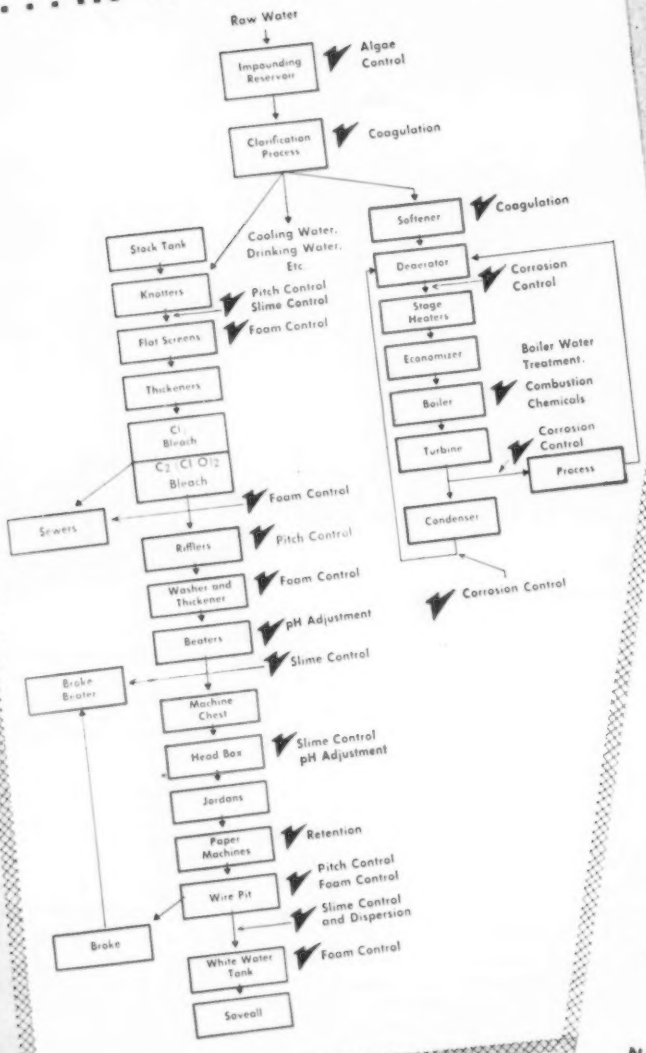
IN MEXICO: Manuel Del Castillo 1. La Catolica 45 Desp. 711-712 Mexico (1) D.F.

HERE IS THE

COMPLETE *Nalco* PROGRAM

for Better Products at Lower Cost

. . . IN A TYPICAL MILL



NALCO has the *widest variety* of formulas to assure results in your mill, too. Here are some examples . . . representative Nalco products listed under headings which indicate the job they do. And the chart at left tells you where they are used. Your Nalco Representative will tell you more about them — or write direct to Nalco.

ALGAE CONTROL
Nalco Cuprose
Nalco 21-S
Nalco 201
Nalco 234
Nalco 236
Nalco 237

COAGULATION
Nalco 600
Nalco 650
Nalco 680

COMBUSTION CHEMICALS
Nalco 155
Nalco 156
Nalco 156-C

FOAM CONTROL
Nalco 71
Nalco 71-B
Nalco 71-C
Nalco 71-D5
Nalco 71-K
Nalco 72

CORROSION CONTROL
Nalco 19
Nalco 35
Nalco 353
Nalco 918

pH ADJUSTMENT
Nalco 680

PITCH CONTROL
Nalco 818

RETENTION AND CLARIFICATION
Nalco 600
Nalco 650
Nalco 680

SLIME CONTROL AND DISPERSION
Nalco 21-S
Nalco 21-M
Nalco 201
Nalco 234
Nalco 236
Nalco 237

BOILER WATER TREATMENT
Nalco 75
Nalco 718
Nalco 728
Nalco 752

NATIONAL ALUMINATE CORPORATION
6221 West 66th Place • Chicago 38, Illinois
CANADA: Alchem Limited, Burlington, Ontario
IN THE NORTHWESTERN UNITED STATES, HAWAII AND ALASKA:
The Flox Company, Inc., Minneapolis 3, Minnesota
BRANCHES AND AFFILIATES IN SPAIN, ITALY AND WEST GERMANY

THE *Nalco*®
SYSTEM . . . Serving the Paper Industry through Practical Applied Science

Published every Monday by Lockwood Trade Journal Co., Inc., 49 West 45th Street, New York 36

Phone: PLaza 7-2370

JOHN C. W. EVANS
Editor

PAUL D. VAN DERVEER
Associate Editor

R. E. THUEMMES
Associate Editor

J. A. BROPHY
Managing Editor

ARTHUR KUDNER
Assistant Editor

LOCKWOOD TRADE JOURNAL CO., INC.

GEORGE E. LOCKWOOD.....President and Treasurer
ARTHUR E. GORDON.....Vice-President
FREDERICK E. WINKLER.....Secretary

Entered as Second Class Matter at the post office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication office at Lockwood Trade Journal Co., Inc., 34 North Crystal St., East Stroudsburg, Pa. Printed in U.S.A. Copyright 1958 by Lockwood Trade Journal Co., Inc. **Paper** established Feb. 17, 1890, combined with **Paper Trade Journal** Nov. 16, 1899. **Paper** established Sept. 21, 1910, combined with **Paper Trade Journal** February 19, 1920. All rights to the above titles reserved. Contents of **Paper Trade Journal**, including all articles, illustrations, etc., are copyrighted and may not be reprinted except by permission. Also publishers of **Lockwood's Annual Directory of the Paper and Allied Trades.**

REMEMBER THESE DATES

March 27-28: Annual Conference, Pulp and Paper Subcommittee, American Institute of Electrical Engineers, North Carolina State College, Raleigh, N. C.

March 31, April 1-2: National Paper Trade Assn. 55th annual convention, Waldorf-Astoria, New York.

May 14-16: TAPPI Coating Conference, Bedford Springs Hotel, Bedford Springs, Pa.

June 2-4: Technical Section, CPPA, Summer Meeting, Chateau Frontenac, Quebec City.

June 3-5: Superintendents' Assn. Annual Meeting Statler Hotel, Boston, Mass.

SUBSCRIPTIONS

United States	1 yr.	2 yrs.	3 yrs.
Paper and Pulp Mills, Converters, and Personnel	$5.00	$8.00	$10.00
All others	7.50		
U. S. Possessions and Canada	7.00	11.00	14.00
Latin American Countries	15.00	25.00	30.00
All other Countries	20.00	30.00	40.00

Single copy price of current issues:
North America 50c
Foreign $1.00

R. E. BOETSCH
Director of Circulation

PAPER TRADE JOURNAL

Published Weekly Since 1872

March 31, 1958, *Vol. 142, No. 13*

NEWS BRIEFS

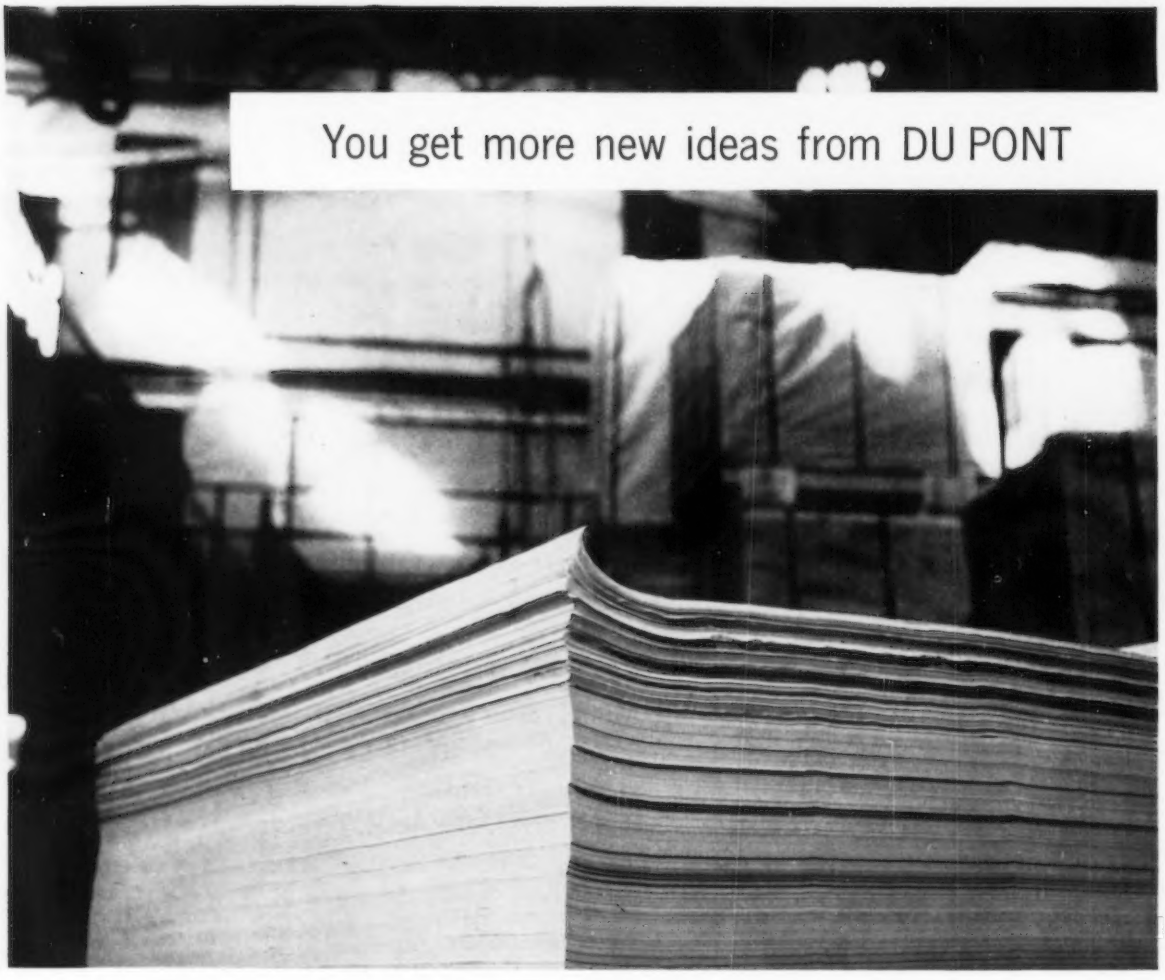
West Virginia Buys Fulton Bag 15
International Paper Buys Lord Baltimore 15
Du Pont Leases Riegel Facilities 15

FEATURE ARTICLES

White Water and Fiber Loss Control Methods Featured at Superintendents Meeting 20
How the Rayonier Shelton Mill Disposes of Sulphite Waste Liquor 22
Corn Starches for Surface Sizing at Size Press and Calender Stack 26
New Valve Solves Mead Stock Control Problem .. 30
In-the-Pipe System Measures, Controls Consistency Over Wide Range 32

NEWS OF CONVERTERS 16
NEW EQUIPMENT FOR CONVERTERS... 19
PRICES 29
PAPER PEOPLE 35
NEW EQUIPMENT 36
FIGURES OF THE WEEK 38
NEW LITERATURE 39
OBITUARIES 40
MERCHANTS 40
NEWS OF SUPPLIERS .. 41
CLASSIFIED ADVERTISING 49
ADVERTISERS INDEX .. 50

PAPER TRADE JOURNAL—49 W. 45th St., N.Y. 36, N.Y.
Please enter a subscription with the mailing address as follows:
Name .....
Address .....
City..... Zone..... State.....
If subscription is for an individual, please fill in:
Employer..... City..... State.....
Position..... Employer's Business.....
Amount $..... ☐ Bill Me ☐ Bill Company ☐ Check Enclosed



New AVITEX® ML prevents paper curling

Now it's possible to prevent a printer's bugaboo for him while his paper is still a pulp. Recent field tests have proved the value of Du Pont AVITEX ML in preventing curling in finished papers due to changes in atmosphere. Reason: AVITEX ML helps keep the moisture content of papers in constant equilibrium. Result: dress patterns, industrial patterns and printing papers stacked for feeding into a flat-bed press *stay* flat, won't curl at the edges. Papers also possess improved dimensional stability.

AVITEX ML also acts to reduce lint pick-up caused by static electricity on papers printed at high speeds.

AVITEX ML imparts softness, too, in tissue and toweling papers. Its unusual rewetting properties give them the kind of extra absorbency that makes consumers buy a brand a second time.

This Du Pont paper conditioner and softener can be used with conventional mill equipment and may be added either to the pulp slurry or applied at the size press. A product information bulletin containing full details is available. Just write to: E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Dept., Dyes and Chemicals Division, Wilmington 98, Delaware.

DU PONT
REG. U. S. PAT. OFF.

DYES AND CHEMICALS

Better Things for Better Living . . . *through Chemistry*

Why does practically every paper and board machine built in recent years have a Fulton Dryer Drainage System on the dryer section?

Why do paper machine builders rate Fulton Systems standard equipment on their new machines?

Why do machine builders urge operators of older machines, regardless of age or size, to install Fulton equipment?

Fulton Drainage equipment on your dryer gives you properly graduated temperatures under automatic control, hence lower steam input but faster drying and less shrinkage, cockling, curling hardening and less broke—far less broke!

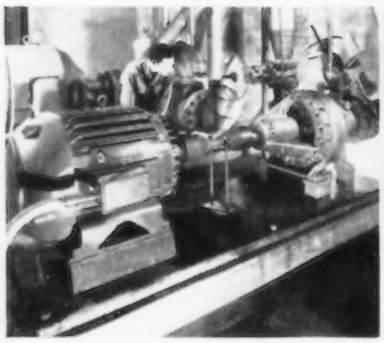
have us make a *technical* survey, then do some hard *thinking*

ROSS MIDWEST FULTON CORP., DAYTON, OHIO — U.S.A.

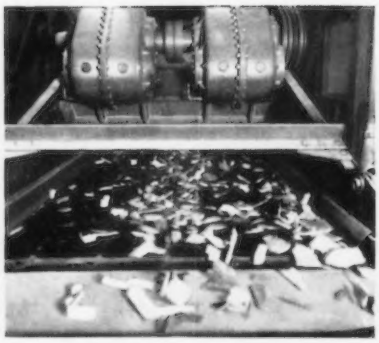
Subsidiary of J. O Ross Engineering—Division of Midland-Ross Corporation

Representatives: James Brinkley, Seattle; Clark & Vicario, North Tarrytown, N. Y.; Ross Engineering of Canada Limited, Montreal — Fredericton — Toronto — Port Arthur — Vancouver

ALL THIS from

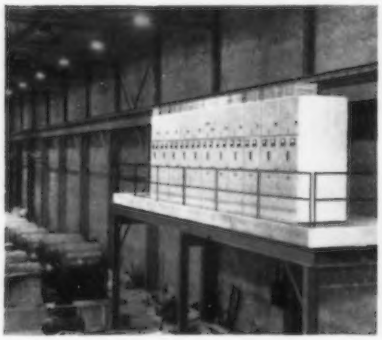


Unscreened bleach stock pumped by an Allis-Chalmers Type PW stock pump and rib-type motor in an Idaho mill.

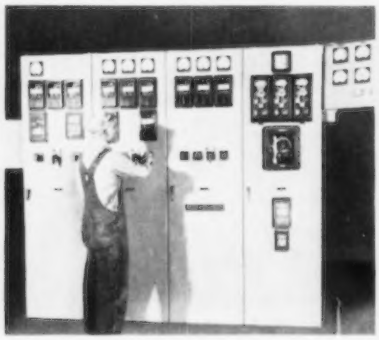


Double-deck Low-Head screen with dual mechanism classifies 16 units of chips per hour in an Idaho mill.

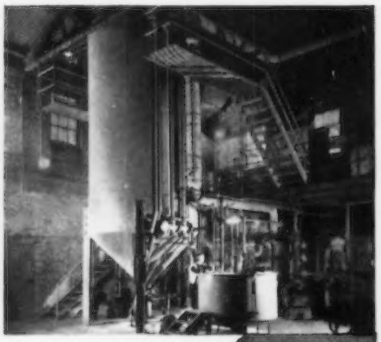
Steam turbine generator, in a Wisconsin paper mill, generates power as a by-product of process steam.



Allis-Chalmers Type HALS synchronous motor starter units are used to control A-C synchronous motors driving the Jordan refiners in an Idaho paper mill.



Metal-clad switchgear in Wisconsin paper mill. A-C also makes low-voltage metal-enclosed switchgear, load-center and primary unit substations, and switchboards.



Allis-Chalmers water conditioning equipment and specialists solve problems of alkalinity, scale, corrosion, and solids concentration in boiler makeup water.

Causticizing plant in Idaho, burning precipitated calcium-carbonate sludge to lime in A-C kiln.

ACAP and Low-Head are Allis-Chalmers trademarks.

ALLIS-

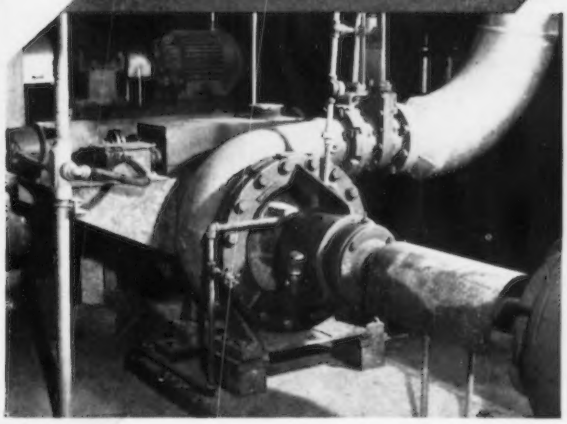
One Source

...FOR HIGH PRODUCTION

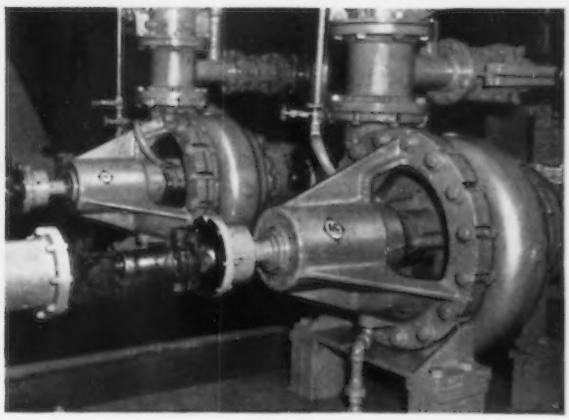
LOW-COST STOCK FLOW

YOU can coordinate the operations of your entire mill with equipment from one source . . . Allis-Chalmers. Much of this equipment is specifically designed for pulp and paper service. All of it is designed to work together . . . to assure you a high efficiency flow. Integrating this broad range of equipment also gives you a profitable opportunity to standardize—to simplify inspection and maintenance procedures—to cut parts stocking problems. And you gain *all the advantages* of "one source" responsibility.

The experience Allis-Chalmers has gained in a long and intimate association with the pulp and paper industry is available to you or your consultants. Your local A-C representative will start an Allis-Chalmers team helping you with your expansion or modernization plans. Call him, or write Allis-Chalmers, Milwaukee 1, Wisconsin.



Four percent kraft stock pumped to refiners by ACAP pump in a Georgia mill.

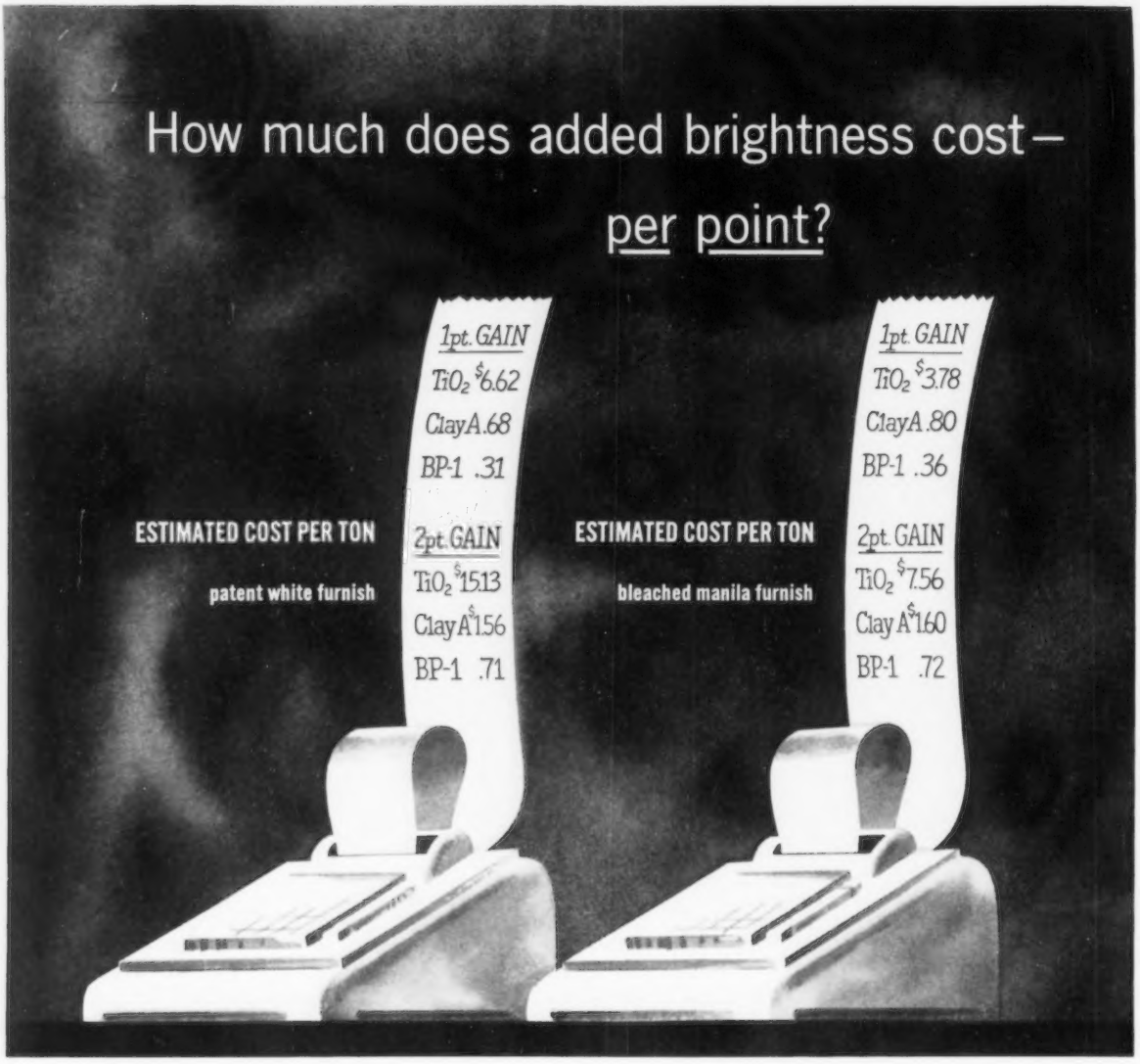


Sulphite stock pumped from blow pit to knotters by Allis-Chalmers Type PW pump in a Mississippi mill.

CHALMERS

A-5396

How much does added brightness cost—per point?



TEST-PROVED! ***High-brightness Dicalite costs you less than any other type of filler-pigment***

These figures, calculated from the results of tests recently made in a leading paper mill, show what some widely-used filler-pigments really cost. Because of the difference in retention of various materials these figures show the cost of filler-pigment which must be added to the furnish to obtain the brightness gain shown. In these tests, conducted in strict conformity with TAPPI T-205-M-53, *three times* as much Dicalite BP-1 (brightness 89.6 on the G.E. scale) was retained in the sheet as any other type of filler-pigment. BP-3 and BP-5 did almost as well. Once again, careful and impartial tests have given proof that high-brightness Dicalite Paperaids allow you to replace significant amounts of expensive TiO_2, and still get a better, brighter, smoother sheet at lower cost.

Write for information Dependable GLC GREAT LAKES **Dicalite**® DIATOMACEOUS MATERIALS

DICALITE DEPARTMENT · GREAT LAKES CARBON CORPORATION, 612 SOUTH FLOWER STREET, LOS ANGELES 17, CALIFORNIA

Production of Bleached Sulphate Pulp Doubled at Dryden's Ontario Plant

Dryden Invites You to Order a Trial Car of Bleached Sulphate Today

Dryden's Ontario plant is more than "in production." It has already doubled its manufacturing facilities. This expansion will help answer the new demands arising from the favorable response to our Northern Bleached Sulphate Pulp during the first few months.

Laboratory reports by leading paper makers are unanimous in their endorsement of this pulp. They find it the equal of the finest grades on the market.

Why not order a shipment of the Bleached Sulphate now? You will then be assured of a dependable North American source of this quality pulp... *the finest you can get* for your money.

A year from now you will be glad you ordered a trial car *today*.

We invite your comparison.

Dryden

Paper Company, Limited

Dryden, Ontario, Canada

NORTHEASTERN PAPER SALES, INC.
400 Madison Avenue
New York 17, N.Y.

20 North Wacker Drive
Chicago 6, Ill.

ANGLO PAPER PRODUCTS, LTD.
2055 Peel Street
Montreal 2, Quebec

67 Yonge Street
Toronto 1, Ontario

The time for whiter, more opaque coatings ... is now!

UNITANE® *Rutile Titanium Dioxides are bringing coating performance up to date.*

For many years

. . . UNITANE O-110 has been highly effective in paper coatings to provide high opacity and whiteness. It is still the preferred titanium dioxide in casein-based systems.

Currently, for even greater opacity

. . . UNITANE OR-540 *rutile* titanium dioxide is finding wider application in publication stock and allied papers. As paper basis weights decrease, the unexcelled opacifying properties of this rutile type become even more valuable as a practical, economical answer to paper-mill quality problems. In the newer latex and emulsion systems, UNITANE OR-540 is giving particularly excellent performance.

Any time you need whiter coatings

. . . you can enjoy the benefit of choosing from a wide range of UNITANE anatase or rutile titanium dioxide types. Samples for evaluation are always available from your Cyanamid Pigments representative – along with recommendations stemming from the work of Cyanamid's Paper Chemicals technical group.

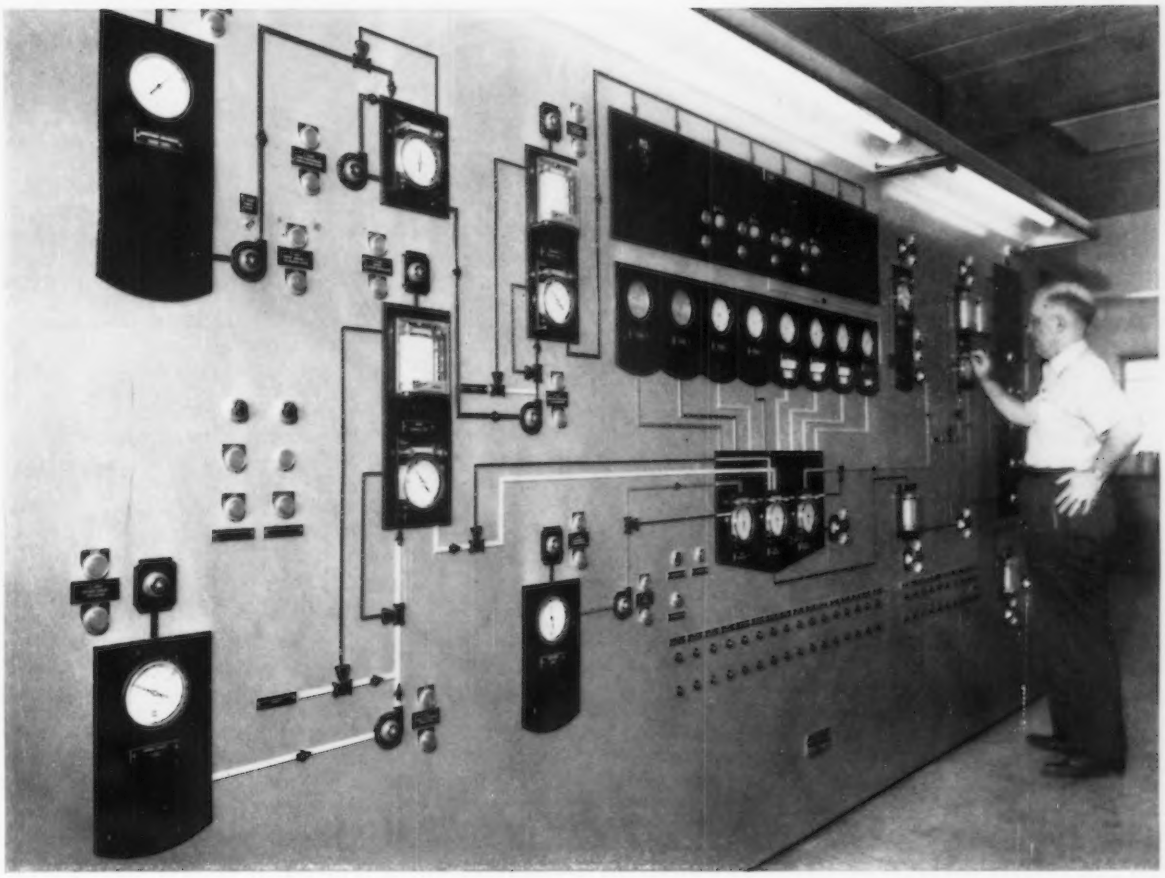
CYANAMID

AMERICAN CYANAMID COMPANY
Pigments Division
30 Rockefeller Plaza, New York 20, N. Y.

A Major Source of Titanium Dioxides

Branch Offices and Warehouses in Principal Cities

WHITER AND BRIGHTER WITH UNITANE



Trimbey System *Taylored* to Mead's needs

Operator has complete control from central panel

SHOWN above is one of the Taylor control panels for the Trimbey Proportioning Systems at The Mead Corporation, Chillicothe, Ohio. These systems continuously blend three pulps, clay, size, starch, alum and four colors to meet the specifications of the paper being produced at any time.

From these central control panels, the operator has complete control of the furnish. He can see at a glance exactly what the system is doing—the flow of the furnish, the level in the different chests, and the levels of the various chemicals. To insure the consistently high quality of product for which they are famous, The Mead Corporation has several systems like this, using Taylor Controls.

This is another example of how Taylor engineers work with the equipment manufacturers and the customer to design control systems to meet individual requirements. For an insight into solving *your* control problems, see your Taylor Field Engineer, or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Ontario.

Taylor Instruments

MEAN

ACCURACY FIRST

VISION · INGENUITY · DEPENDABILITY

fomout

THE PRODUCT
THAT SOLVES MOST
FOAM PROBLEMS
OF THE
PULP AND PAPER MILLS

Information on request

R. T. VANDERBILT CO., INC.
230 Park Avenue, New York 17, N. Y.

International Papers Buys Lord Baltimore

International Paper Co., New York, has acquired Lord Baltimore Press, large printing, lithographing and packaging firm.

The consideration was 190,000 shares of International Paper common stock, which had a market value of approximately $17 million.

Operations of Lord Baltimore Press will be carried on with the present management and personnel, International Paper said.

Hugo Dalsheimer, formerly president and treasurer of Lord Baltimore, has been named chairman of the board of the printing firm.

Leonard Dalsemer, formerly executive vice president has been appointed president of Lord Baltimore Press and a vice president of International Paper.

West Virginia Buys Fulton Bag

Fulton Bag and Products Co., New Orleans, La., is being absorbed through a cash transaction as a division of West Virginia Pulp and Paper Co., it was announced by officials of the two companies.

An agreement between the two companies has been signed and the closing is scheduled for April 3. Details of the transaction were not disclosed.

Fulton Bag and Products Co. operates plants at New Orleans and St. Louis, producings multiwall paper sacks, waterproof paperlined bags, textile bags, canvas products and other specialties. The company maintains district sales offices in New York, Chicago, Minneapolis, Denver, Kansas City, Dallas and Atlanta.

David L. Luke, president of West Virginia Pulp and Paper Co., said the bag company would be merged as a division of the parent company as soon as legal arrangements are worked out.

The present management of Fulton Bag and Products, headed by Jason M. Elsas, president, will continue to direct its operations. No changes are contemplated in the operating or sales organization of the company, which has been engaged in the bag business in New Orleans and St. Louis since the turn of the century.

"Our acquisition of Fulton Bag and Products will in no way alter our program for the sale of either our new stretchable kraft paper or our conventional grades to multiwall bag customers, since total requirements of our new division represent a relatively small percentage of our total production," Mr. Luke said.

Paper and Board Production

According to the American Paper and Pulp Assn., the ratio of the United States production to mill capacity for the week ending March 15, 1958, was 88.8 per cent compared with 86.7 per cent revised for the preceding week. The ratio was 96.9 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending March 15, 1958, was 89 per cent compared with 87 per cent for the preceding week and 95 per cent for the corresponding week last year.

(Detailed statistics on page 38.)

Anjopa Paper Is Declared Bankrupt

On the advice of counsel Frank A. Coppola of New York, three paper stock firms of the same city have successfully filed a petition declaring Anjopa Paper Mfg. Co., Inc., Napanoch, N. Y., involuntarily bankrupt.

Claims against the paper company are $82,000 by Giove Co., Inc., 557 Water St., $49,000 by Daniello Waste Material Corp., 268 West St., and $22,000 by Ponte Brothers Inc., also of 268 West St.

Joseph Di Candia, former president of Anjopa Paper, is currently serving a three year term in prison after being convicted a participant in a conspiracy to misapply funds of the now defunct Home National Bank of Ellenville, N. Y.

Federal Judge Gregory F. Noonan has appointed New York attorney Joseph W. Burns as receiver for the paper company. The Federal Deposit Insurance Corporation is the preferred creditor.

Du Pont Leases Riegel Facilities

An agreement to lease certain pilot plant facilities of the Riegel Paper Corp. has been announced by Du Pont Co. Use of the pilot plant equipment, which will be operated by Riegel personnel, will result in expanded development work on the use of synthetic fibers in paper, according to Du Pont, and will permit major scaling-up of laboratory findings.

Training Directors to Meet in May

The sixth annual meeting of the Pulp and Paper Section of the American Society of Training Directors will be held in the Sheraton-Park Hotel in Washington, D. C., on May 5. The program content will emphasize practical applications of training methods which have been tested and are now in use by the industry, according to W. H. Stubbs, conference chairman and training director of American Box Board Co., Grand Rapids, Mich.

Featured discussion leaders will include Bill Binns, training director, Union Bag-Camp Paper Co.; Linc Walz, manufacturing training supervisor, Scott Paper Co.; Dr. Nadelman, director, School of Pulp and Paper Technology, Western Michigan University; Richard Fear, Psychological Corp.; Glenn Waters, administrator of general training, St. Regis Paper Co.; H. W. Temple, Industrial Relations, Abitibi Power & Paper Co., Ltd.; and Franc Ricciardi, American Management Association.

Although designed primarily for training personnel, the conference is open to others upon arrangement with Chairman Stubbs.

NEWS OF CONVERTERS

Olin Mathieson to Make Containers in Cincinnati

Olin Mathieson Chemical Corp. has announced plans to produce corrugated containers in Cincinnati.

Kent Anderson, production manager for containers of the corporation's Forest Products division, announced that the former plant of Lunkenheimer Co. has been leased on a long-term basis. The plant will be remodeled. It will house an 85-inch corrugating machine plus auxiliary equipment, to be transferred from the division's present facilities in West Monroe, La. Plant operations in Cincinnati are expected to begin about the middle of the year.

Mr. Anderson has appointed John Wold as general manager of the Cincinnati operations. Mr. Wold was formerly assistant district sales manager in Chicago.

St. Regis Negotiates for Container Plant

Roy K. Ferguson, chairman of the board of St. Regis Paper Co., said last night that the firm is negotiating for the purchase of the Growers Container Corp. plant in Jacksonville, Fla.

The plant, constructed in 1956 northwest of the St. Regis plant, manufactures corrugated cartons and receives much of its necessary paper and paperboard from the St. Regis mill. Mr. Ferguson said the current capacity of 750,000 fiber boxes a week manufactured by Growers Container Corp. here "can be expanded further."

Starin Elected Chatfield Director

Myndret S. Starin has been elected a director of the Chatfield Paper Co, New Haven, Conn., and will head its automatic packaging division.

Mr. Starin joined the paper and specialty products concern in 1952.

Curtis Paper Names Advertising Manager

Ella Mae Maclary, an employee of Curtis Paper Company sales department in Newark, has been appointed advertising manager of the company. Miss Maclary has been with Curtis for 10 years.

Imperial Bag to Open Pine Bluff Plant

Imperial Bag and Paper Co., will open a plant in Pine Bluff, Ark. to use paper produced at Pine Bluff mills, according to Robert M. Meyer, president of Imperial. He said the plant, which will be located in buildings formerly occupied by Central Transformer Corp. at the Pine Bluff Arsenal, would make single wall kraft paper grocery bags.

Equipment for the plant has not been installed and no date has been set for the start of production.

Martin to Make Corrugated in Regina

Martin Paper Products Ltd., jointly-owned subsidiary of Powell River Co., and MacMillan & Bloedel Co., plans to build an $800,000 plant in Regina, Saskatchewan, to make corrugated containers.

A Saskatchewan government announcement said building would start in early spring with operations scheduled to begin in the fall. The plant would start with 45 employees and have an annual payroll of $160,000.

Markets for the plant will be in the beverage and food industries.

Freund Corp. Buys Drake & Sons

Paul T. Freund Corp., Rochester, N. Y. manufacturers of paper boxes since 1891, have purchased the H. R. Drake & Sons of Palmyra, N. Y. It will be operated as a division of Freund with Lyman Crothers as general manager. Charles R. Drake will become a member of the Freund board of directors.

Kimberly To Double New Milford Plant

Kimberly-Clark Corp. has announced the capacity of a new crepe wadding plant at New Milford, Conn., would be doubled.

The first wadding machine won't go into operation at New Milford until next month. Its 75-ton daily capacity will be matched by the second machine, and a 200,000 sq. ft. warehouse will be added.

Lily-Tulip West Coast Plant Nears Completion

Construction work on Lily-Tulip Cup Corp.'s new plant in Riverside, Calif. has progressed so that the official opening is now scheduled for May 6.

Walter J. Bergman, president, predicted that the Riverside plant will be in full production by the third quarter of this year. Limited production is now under way.

Special construction features are an underground tunnel system for the 15 service lines required; air conditioning and humidity control in manufacturing areas and offices; and a glass-enclosed boiler room.

The new plant will employ between 400 and 600 people. Built on the site of a 48-acre orange grove, the plant went from raw land to finished building in just eight months.

Paper Supply Co. Expands in Los Angeles

Paper Supply Co., Los Angeles, has leased the 60,000 sq. ft. warehouse and division office of General Tire & Rubber Co. Occupying 2.3 acres, the operational capacity of the new plant will immediately be increased 30 per cent.

U.S. Envelope Elects New Secretary

United States Envelope Co., Springfield, Mass. has elected Donald C. Stiles corporation secretary to fill the vacancy created by the resignation last December of the former secretary, Luella M. Thayer. Mr. Stiles has been with the company since 1928. Since March 1957 he has been assistant secretary.

Albert F. Duval Jr., vice president in charge of sales was named to the board of directors.

Taylor Gets Wrap-King Promotion

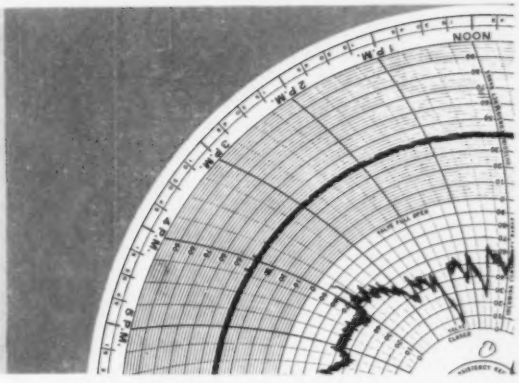
Richard J. Taylor has been promoted to administrative assistant to the general manager of Crompton and Knowles Packaging Corp., Holyoke, Mass. (formerly Wrap-King) from his former post of assistant production manager of the Holyoke plant.

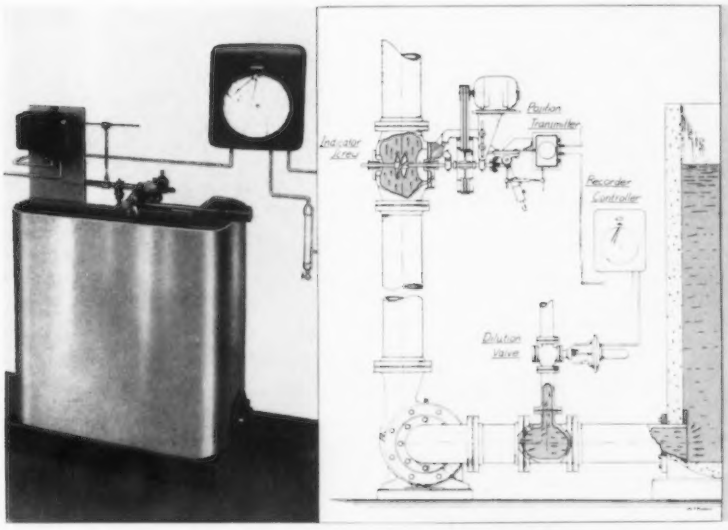
Saniwax Appoints Morris

Ray W. Morris has been appointed general superintendent of operations for Saniwax Paper Co. Previously was assistant superintendent of operations, he will assume complete responsibility for production of all products.

3 WAYS OF LOOKING AT THE BIRD CONSISTENCY REGULATOR

CONTINUOUS 24-HOUR CHART RECORD of both incoming and outgoing consistencies proves that expensive stock is not being wasted by running overweight . . . that rejects are not being risked by running underweight.

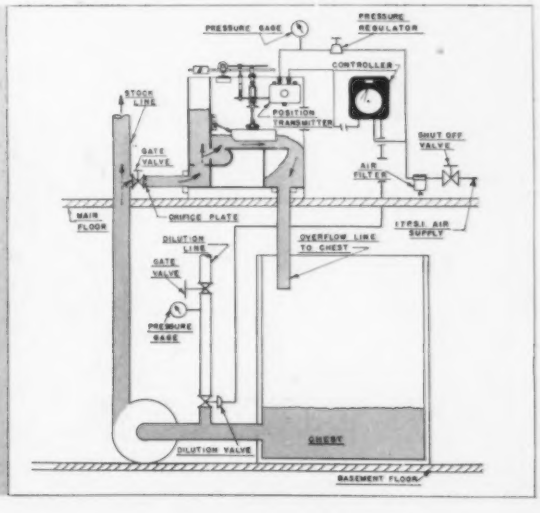




WIDE RANGE The Bird Consistency Regulator can handle consistencies from 0.5% to as high as 8% and flow of stock from less than 50 gpm up to 5000 gpm.

EXPERT APPLICATION ENGINEERING Every Bird Regulator installation is individually engineered to provide accurate, dependable consistency control under the specific conditions of tonnage, consistency and dilution water pressure.

BIRD MACHINE COMPANY
SOUTH WALPOLE, MASSACHUSETTS
REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND, OREGON • ATLANTA, GEORGIA
Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND CO., Limited, Montreal



Speakers Set for Fiber Box Meeting

Speakers on selling, market development and transportation will address the spring meeting of the Fiber Box Assn., to be held at the Edgewater Beach Hotel, Chicago, April 22 and 23.

Gene Flack, sales counsel and director of advertising, Sunshine Biscuits, will talk about "A Shot of Sunshine" on the opening day of the meeting. Pierre D. Martineau, director of research and marketing for the Chicago Tribune, will explain the new philosophy of today's market on the same day.

The second session will feature Ben W. Heineman, chairman of the board, Chicago and Northwestern Railway, who will discuss transportation problems. Dr. Howard T. Hovde, the Econometric Institute, will speak on fiber box economic prospects.

McVicar to Head Westvaco Printing Paper Sales

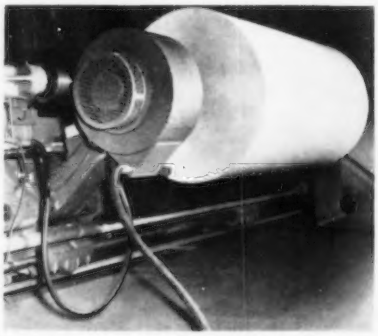
Walter D. McVicar, assistant manager for administration at the Luke, Md., mill of West Virginia Pulp and Paper Co., is being transferred to the New York office to become assistant manager of the company's commercial printing paper sales organization. The new assignment becomes effective April 1.

Moraine Converting Rolls with New Slitter-Rewinder

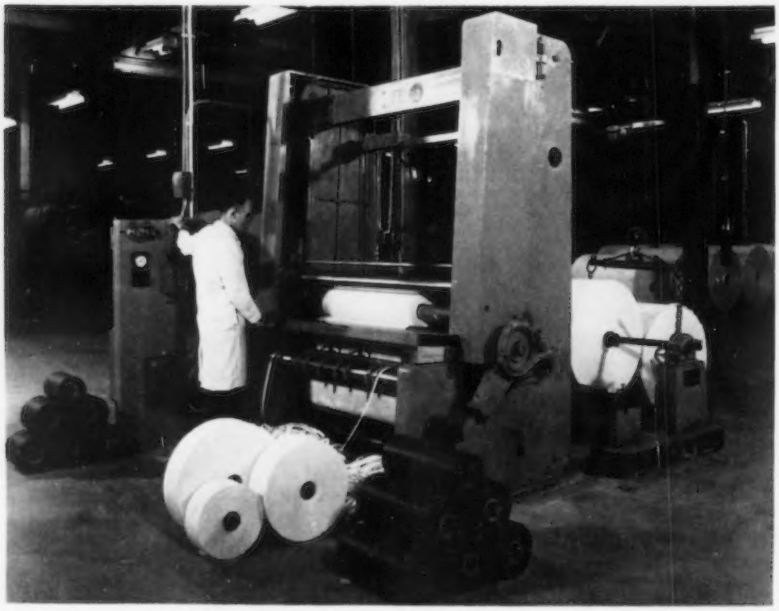
A new converting type slitter-rewinder has been put into operation at Moraine Paper Co., West Carrollton, Ohio, to enable them to offer their customers quick delivery of a wide range of finished roll sizes.

The new machine, a Black-Clawson Model TD-6, is being used to produce rolls from 1½ to 62 inches wide in diameters up to 42 inch. Grades manufactured by Moraine range in weight from Substance 20 envelope paper thru basis 170 index bristol and include a variety of grades such as offset, ledger, postcard and bleached white kraft.

The machine has shear cut, pneumatically positioned slitters. Tolerances to 1/64 inch can be held thru the use of an Askania automatic edge control on the unwind stand.



ROLL READY FOR EJECTION. Rewinding is almost completed by this 104-inch Langston slitter and winder at P. H. Glatfelter Co.



UNWIND STAND IN RAISED POSITION. Operator's unwind stand pushbutton control can be seen forward of brake housing.

Blount Retires As Head of Hampden Glazed

Rufus F. Blount retired as president and general manager of the Hampden Glazed Paper & Card Co., Holyoke, Mass. after 47 years of association with that firm. He joined the concern in 1911, following his graduation from Yale University, and started out in the technical division. Later he was elected treasurer and in 1955 was elected president and general manager. He will continue his association with the company as chairman of its board of directors.

James A. Leyden has been elected president and Frank N. Fowler of Holyoke has been elected vice president and general manager.

Mr. Leyden has been with the company since 1915, as manager of the New York sales office until 1944 when he became vice president and general sales manager of the company.

Mr. Fowler will retain his present duties as treasurer of the firm in addition to his two new offices.

Mr. Fowler has been connected with the Holyoke firm since 1940.

Louisville Co. Names Officer and Manager

The promotion of Bruce M. Smith to vice president in charge of manufacturing of the Louisville Paper and Manufacturing Co. has been announced.

Malcolm M. Decamp has been appointed manager of the company's tablet and paper-converting department.

Superior Paper Names Van Buskirk Sales VP

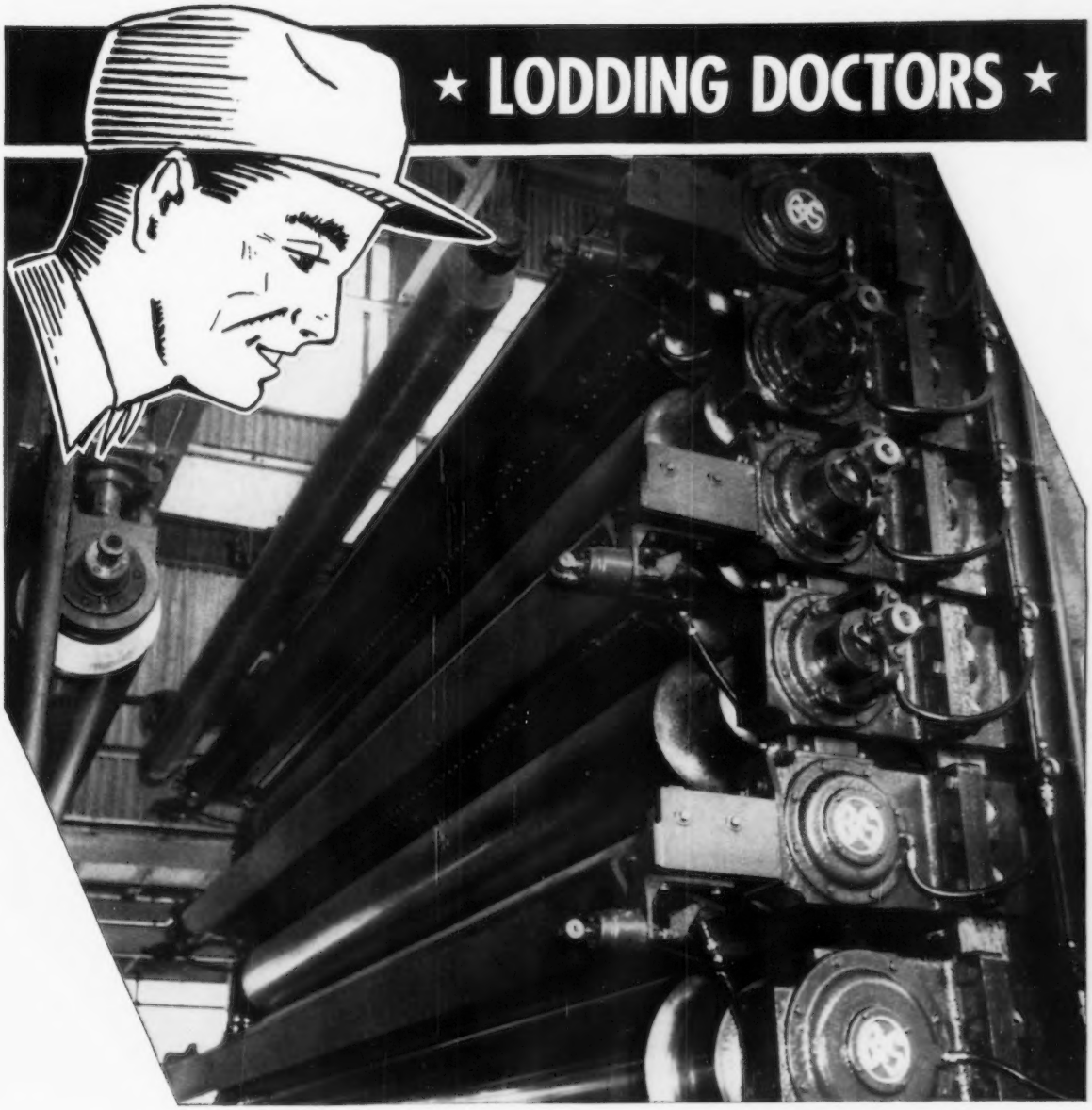
Marc Van Buskirk has been appointed vice president of sales for Superior Paper Products Co. Inc., Marion, Ind., a subsidiary of Cornell Paperboard Products Co., Milwaukee. He was former national sales manager for National Presto Industries, Inc., Eau Claire, Wis.

Sales Messages on Cloth-Adhering Paper

A new contribution to the packaging, sales promotion and retailing arts has been made by Nashua Corp., Nashua, N. H., with the introduction of an original heat seal paper. Called "Imac Tex" it is the first such paper that "comes away clean" from any fabric.

Now, manufacturers and retailers can attach large sales-stimulating labels to all types of fabric products. They can be attached at the most prominently seen location. Previously, tagging and labeling has been restricted to pin-on or stick-on tags with size and style information. String tags hang loose, become lost, or are often switched by customers.

★ LODDING DOCTORS ★



Modern paper-makers use
Lodding *modern*
Calender Doctors

LODDING ENGINEERING CORPORATION
WORCESTER, MASSACHUSETTS

Gown by Sophie of Saks Fifth Avenue

COLUMBIA-SOUTHERN CHEMICALS HELP SHAPE

IDEAS ON DISPLAY . . . watched every day by the management team building and selling successful products. Their responsibilities range from research and design to marketing and delivery.

These men and women make the profit-creating decisions for going, growing businesses . . . textiles, petroleum products, paper, metals, plastics, food, glass, soap, foils and wraps, chemicals, pharmaceuticals, cosmetics, rubber goods, disinfectants and cleansers. A vital part of their jobs is spotting and applying new trends in materials selection, processing, and handling that produce better goods at lower cost.

The versatile basic chemicals are deeply involved in the style changes continually reshaping almost all products and processes. Columbia-Southern, a leading producer of these essential industrial chemicals, can be a big help to your business as both supplier and technical adviser. Call Columbia-Southern with your next order. You'll soon see why Columbia-Southern chemicals, research, service, and technical assistance help shape profitable futures for products. The Columbia-Southern Chemical Corporation, One Gateway Center, Pittsburgh 22, Pennsylvania. Offices in principal cities. In Canada: Standard Chemical Limited.

$NaHCO_3$—Sodium Bicarbonate • $CaCl_2$—Calcium Chloride • Na_2SO_4—Sodium Sulfate
KOH—Caustic Potash • CCl_4—Carbon Tetrachloride • NH_3—Anhydrous Ammonia

Caustic soda and chlorine, basic Columbia-Southern chemicals, are used throughout many industries . . . textiles, for one.

THE FUTURE FOR SO MANY PRODUCTS

LOOK AT Cl_2—CHLORINE

Highly reactive chlorine's transforming touch creates thousands of molecular regroupings necessary to economical processing of products ranging from solvents to plastics, wonder drugs to refrigerants.

LOOK AT Na_2CO_3—SODA ASH

This versatile alkali serves as basic raw material or essential "refiner" in the manufacture of glass, chemicals, detergents, ferrous and non-ferrous metals, pigments, soap, textiles, paper and many other items.

LOOK AT NaOH—CAUSTIC SODA

Petroleum producers and cellophane manufacturers, textile and rubber makers, businesses by the dozens put caustic soda's voracious appetite to work "eating" away unwanted organic or inorganic compounds.

LOOK AT H_2O_2—HYDROGEN PEROXIDE

One of Columbia-Southern's newer products, this compliant chemical has a range of reactions that permits its use for bleaching paper and textiles, as a rocket propellant, as a reagent in organic syntheses.

COLUMBIA-SOUTHERN CHEMICAL CORPORATION A Subsidiary of Pittsburgh Plate Glass Company

HCl—Muriatic Acid • $TiCl_4$—Titanium Tetrachloride • $Ca(OCl)_2$—Calcium Hypochlorite
Chlorinated Solvents • Chlorinated Benzenes • Agricultural Chemicals • Chrome Chemicals

This Stainless Steel reducer replaces one that was made from another metal. Notice the cutting, forming, and welding operations that were performed right in Gardner's own pipe shop.

Stainless Steel makes clean paperboard

at Diamond Gardner Corporation,
The Gardner Division,
Middletown, Ohio

Low pH in the mill water systems at one time corroded the equipment that Gardner used in its paperboard plant. As a result, particles of rust and scale sometimes got into the finished paperboard. This was not satisfactory for the high-quality products made from Gardner board.

This board *has* to be clean and uniform in color for uses such as retail packaging. It was easy to see that something had to be done about the corrosion problem.

Something *was* done. They removed the old equipment and replaced it with Stainless Steel. Stainless was selected because it won't corrode in this kind of work. It keeps its dense, smooth surface and is easily cleaned. And because it doesn't corrode, it lasts years longer.

Today, Gardner makes board that meets the highest demands of the package industry—clean enough to hold food, liquids, and drug products.

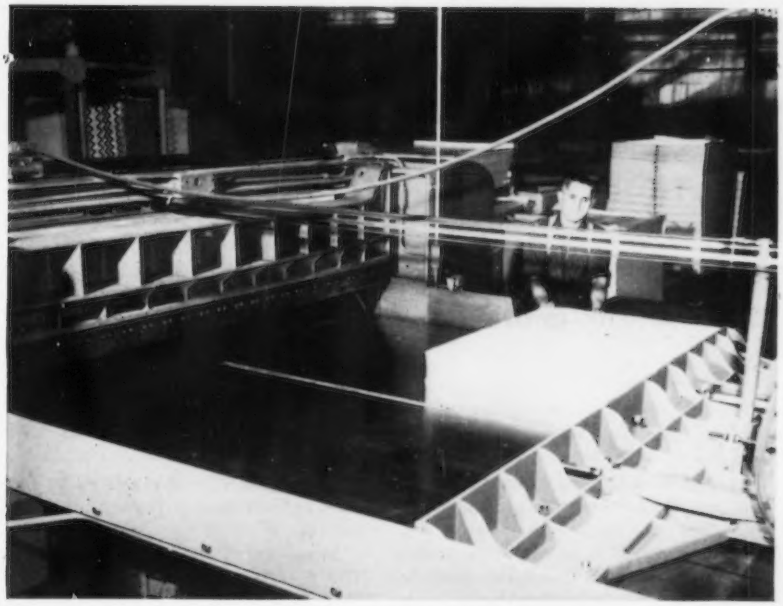
When you think about new equipment for your plant, think about Stainless Steel. And if you want service-tested quality, specify USS Stainless Steel. For fast delivery of Stainless Steel, call your local steel distributor.

USS is a registered trademark

United States Steel Corporation—Pittsburgh
American Steel & Wire—Cleveland
National Tube—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Warehouse Distributors
United States Steel Export Company

USS **United States Steel**

NEW EQUIPMENT FOR CONVERTERS



Spot Closing Device Feature of Mill Trimmer

Shown in operation is a 100-inch Seybold heavy duty full hydraulic mill trimmer recently installed at the Williamsburg, Pa. plant of West Virginia Pulp and Paper Co.

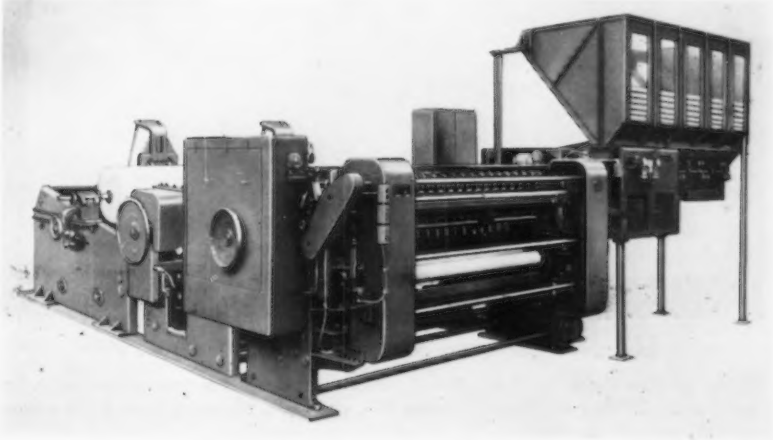
A new feature of the mill trimmer is a closing device built into the rear table to close the slot in which the back gage travels. Consisting of nylon chain connected to the back gage guide, it fills the slot as the back gage moves forward. Seybold's slot closing device now permits back loading of the trimmer without the use of a metal or cardboard sheet under the lead edge. It also facilitates swinging of the paper pile without slot interference. Air or mechanical rams can now side load the back table automatically. The device is expected to accelerate the trend to back loading in plants handling large trimming volume.

Write Harris-Seybold Co., 4510 E. 71st St., Cleveland 5, Ohio.

Automatic Roll Winder Has New Features

Hudson Sharp Machine Co., Green Bay, Wis. is now offering their 60-B automatic toilet tissue and towel roll winder with recently developed features, one of which is their new shear cut device for "clean-cut" perforating of facial quality tissues.

According to the manufacturer, blade breakage is held to an absolute minimum because the device can handle wads and/or other foreign material without damage. Original blades are low in cost, long wearing and easy to replace and adjust when removed for sharpening or regular replacement due to wear. Another feature makes it possible to rack-back the blade holders for safe clearance when threading the machine.



Other features of the winder include continuous running through the entire jumbo roll at better than 1,000 f.p.m. and without slow-down for cut-off. Surface type roll wind-up is employed for positive roll density softness control and roll density is simply adjusted through a variable speed unit. According to the manufacturer, the winder utilizes economical cold glues for attaching tissues to cores which also affords added economies because they are water soluble and culls in paper broke can be re-used. The unit may be obtained with an automatic core loader.

Improved Process For Box-Printing Dies

A product which permits production of improved and detailed rubber and plastic printing dies for use on corrugating medium is called the Coratone. They enable the boxmaker to reproduce with photographic accuracy all of the detail that the artist can put into a black and white drawing including halftones in single or multicolors.

In the Coratone all detail is achieved photographically and pricing is on an area basis. Large amounts of intricate detail cost no more than the same size with little detail.

Coratones are made on quarter-inch thick magnesium and produced by a special combination of electronically controlled etching and routing giving a maximum depth of .120 inches. Sidewalls of the masters are specially treated to allow a clean release from the mold and to produce rubber or plastic printing dies capable of sharp, clean printing. For further information concerning the product write to Oshkosh Engraving Co., 110 State St., Oshkosh, Wis.

White Water and Fiber Loss Control Methods Featured at Superintendents Meeting

First information on operation of the new Jones Vacuum Filter saveall, until now under wraps, is reported here:

Fiber loss control was the subject of the March 18 session of the Miami Valley Division American Pulp and Paper Mill Superintendents Association. The dinner meeting was held in Middletown, Ohio.

Based on this public presentation, *Paper Trade Journal* here presents the first information available concerning the Jones Vacuum filter type saveall now in use at the Aetna Division of Howard Paper Mills in Dayton. This equipment, till now under wraps, has created considerable interest in the industry.

Following a brief business session conducted by Don Goodman, Sorg Paper Co., chairman of the Miami Valley Division of Superintendents, a panel, under the direction of William Zimmerman, mill manager of Moraine Paper Co. division of the American Envelope Co., discussed methods of white water and fiber loss control practiced by three of the area's largest paper mill organizations.

Members of the panel were Arthur Thurn, director of water control, Champion Paper and Fiber Co., Hamilton; William Petrich, Howard Paper Mills, Dayton; and Herbert Smith, technical director of Chillicothe Division, Mead Corp.

These mills were selected for this presentation because of varied elements entering into their white water control methods. Champion must consider coating additives, Mead has a pulp mill involved and Howard uses the new type saveall.

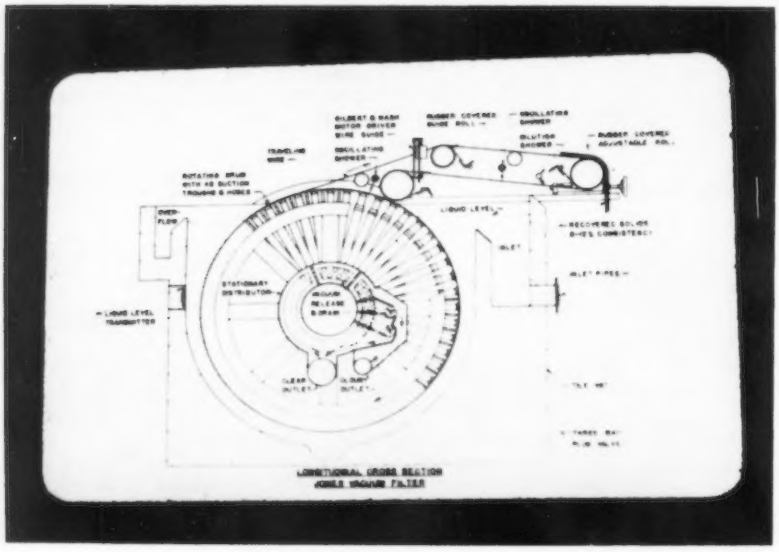


Photo of slide shown at the meeting reveals details of the new saveall. The first installation at Howard Paper's Aetna Div. has reduced losses from 5000 pounds to 1000 pounds per day.

First Installation of New Saveall

Great interest was shown in the Jones-Vacuum filter saveall, unique because it is the first installation of its type, as presented by Mr. Petrich. A sweetener-type saveall, the unit is the result of two years of study and experimentation, a cooperative venture of the Howard and Jones companies.

Now in operation at Howard Paper's Aetna Division, the new saveall consists of a drum, driven by a two-speed motor, which carries the wire through the effluent, picking up the fibers and depositing them into a chute. All white water enters the pit containing the filter drum. The liquid level of the saveall is maintained to fullest capacity possible. A doctor and a shower are used when necessary to assist in removing the filtered stock from the wire onto the conveyor chute, but usually the weight of the stock itself suffices for transfer.

In detail, as shown in the accompanying diagram, the saveall drum revolves

on a stationary distributor. A submerged wire, backed by 48 suction troughs and hoses, picks up the suspended solids in the white water. While the wire retains the fiber, in cylinder machine fashion, the vacuum troughs remove the lean water to a common vacuum release and drain located in the center of the saveall drum. Further clarification takes place so that an effluent separation ("clear water" and "cloudy water") is achieved. Separate valves control these two effluents. One is used for the removal of the "cloudy water", the other for the clear filtrate. These two filtrates are pumped to separate chests. The wire carries the retained stock over guide rolls to a point where it drops its load into a conveyor chute. As the wire returns into the saveall, it is cleaned by a series of showers.

A flow rate through the saveall, maintained usually at 500 g.p.m. by Aetna, depends on stock freeness. The cloudy filtrate is returned to the machine chest while the clear filtrate goes into a storage tank for reuse in beater makeup and showers. Consistency of the recovered stock is 8-12 per cent. This permits its return directly to the stock system because weight control is not affected. Thickening or dilution before stock return are, therefore, not necessary.

Twenty-four hour composite tests of this saveall's effluent show an average of one half pound per 1000 gallons remaining. Previously, loss at Aetna was 5000 pounds per day but with the new installation the loss has been reduced to less than 1000 pounds per day.

At Aetna, Howard uses 10 to 13 thousand gallons of water per ton of paper.

Statistics Aid Champion's White Water Control

Discussing white water control methods practiced by Champion, Mr. Thurn remarked "Don't pay too much attention to saving fiber. Concentrate on your process water . . . the less water you lose, the less fiber you lose, automatically."

At Champion, the beaters draw from the machine's couch and wire pits. Filtrates from the mechanical savealls are used for showers and consistency regulation. Excess filtrate water goes to a storage tank to be used for the deinking plant and the decoating system or for dilution of deinked stock on flat screens. Finally, the filtrate is passed through an Oliver saveall and then sewered.

Champion has four Oliver and five Bird savealls. Machine effluents are measured through Parshall flumes. Champion's white water losses, based on total production, are 0.6 per cent from the paper machines and 0.3 per cent from the mill's deinking plant.

Members of the panel on methods of white water and fiber loss were: William Petrich, Howard Paper Mills; William Zimmerman, Moraine Paper Co.; Arthur Thurn, Champion Paper & Fiber Co.; and Herbert Smith, Chillicothe Div., Mead Corp.

Total fiber losses are approximately 10 per cent. The mill's decoating operation sends approximately three tons of waste material to the sewer. The mill's approximate B.O.D. loss is 14 pounds per ton for the deinking operation and 55 to 60 pounds per ton for the paper machines.

"Champion people are becoming conscious of our loss situation and our white water control efforts," Mr. Thurn said. Champion uses standard methods of statistical quality control for its white water control program. As a result of recent efforts, a 1,500 pound loss reduction has been achieved. Control charts proved themselves in this effort. "Once the information regarding losses was made available, our operators started looking for losses," Mr. Thurn said.

Mead Recommendations

In the white water methods used by Mead, the mill's control laboratory samples Bauer cleaner tertiary rejects three times weekly and obtains a composite test. Because Mead has no use for its excess saveall clarified white water, this too becomes a sewer loss.

To prevent couch pit overflow during a break or shutdown, Mead uses divided couch pits. The first part holds stock and the second part sends rich white water to the saveall. American Filter disk-type savealls are used at each machine. These savealls are 95 to 99 per cent efficient and are checked periodically. Each disk handles 200 gallons of white water per minute. Sweetener stock is taken from the machine chests. White water passed through the savealls comes mostly from the couch pits. White water is used to wash stock from the saveall disks onto a screw conveyor. The capacity and efficiency of these filters depends on speed, stock freeness, disk cleanliness and vacuum available.

Mead uses continuous sampling devices to obtain composite samples of its effluents. These have been found helpful in discovering leaks that are neither obvious nor frequent. Total losses at Mead are 0.3 pounds per thousand gallons for the paper mill. Mead uses 10,000 gallons of water per ton of paper.

Mr. Smith recommended the following as a good series of points for white water control. 1) Keep saveall and centrifugal cleaners in good operating condition, 2) conduct constant visual inspections for leaks and losses in the mill, 3) maintain careful measurements and observations of data and 4) educate the operators.

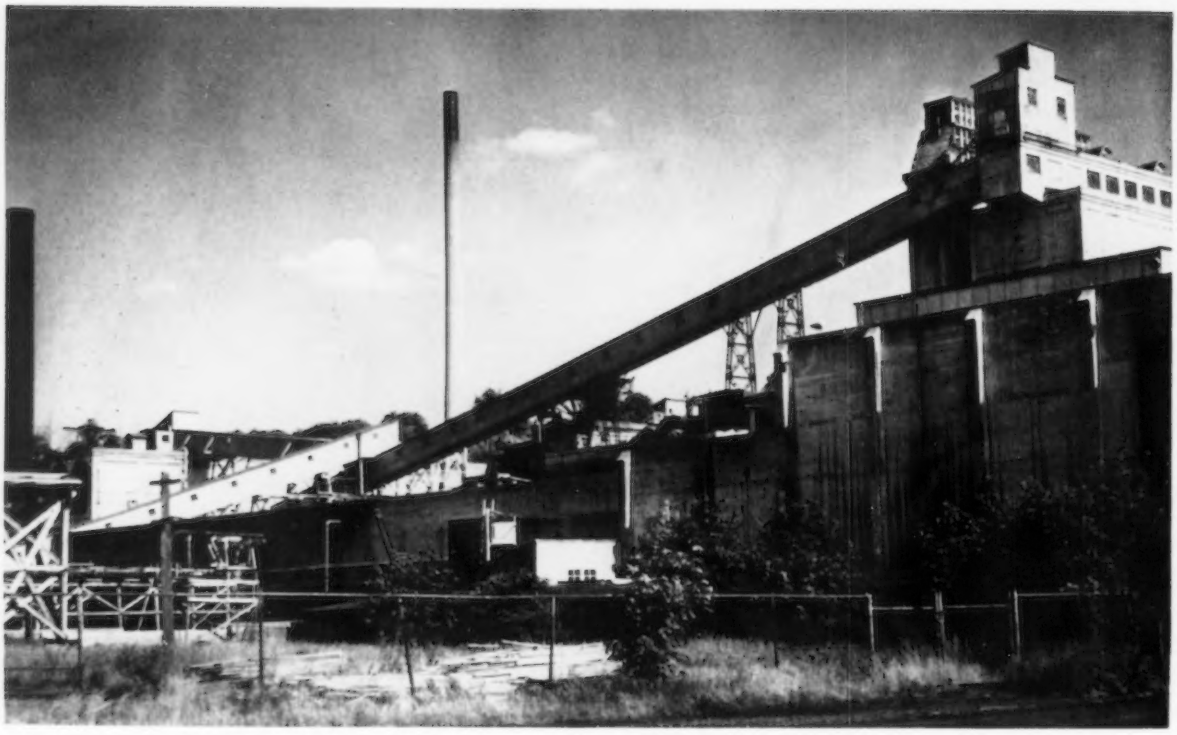
Miscellaneous data made available during the discussion period indicates that Mead has two per cent filler losses, one per cent fiber losses and three per cent loss of soluble materials, and from 0.2 to 2 pounds per 1,000 gallons in the American saveall effluent. The tertiary cleaners have fiber losses of 20 pounds to 300 pounds per day, or 0.3 pounds per ton of stock across the wire.

Champion, using 22,000 gallons of water per ton of paper, has a fiber loss of one per cent, based on paper machine production.

At the Howard mill, trim from the couch pit goes into saveall as sweetener. The mill includes the white water from its press sections in its fiber control. When colored stock is run, the stock retained goes to a sump to be saved for the next color run.

Mr. Thurn also spoke about the work of the TAPPI Water Committee. Noting that only a few Miami Valley men are members of this committee, he urged a larger number to participate.

A social hour before dinner was sponsored by the Stowe-Woodward Co.



How the Rayonier Shelton Mill Disposes of Sulphite Waste Liquor

A unique recovery and burning system for the liquor is coupled with a rigid system for fibrous wastes.

Frank C. Hawks
Asst. Resident Manager
Rayonier, Inc.
Shelton, Wash.

The present sulphite waste liquor disposal system developed by Rayonier in its Shelton, Wash., mill was just placed in operation in 1946 and is recognized industry-wide as perhaps the most efficient waste disposal system now in existence.

Although it was necessary to suspend operations of the Shelton mill in late 1957 due to unfavorable conditions in the pulp market, the waste disposal procedures of this mill are still widely studied. This system effectively destroys over 97 per cent of the total spent sulphite waste liquor produced while operating the mill at its maximum capacity.

The Rayonier Shelton waste disposal system is a two-part operation consisting of a closed system of collecting the waste liquor from the ammonia base sulphite pulping operation and the actual burning and evaporating facilities. The liquor collection system actually has its beginning in the pulp manufacturing processes. The collection system physically consists of considerable piping, pumps, valves and tanks, constructed primarily of type 317 stainless steel.

This system accumulates and retains all spent sulphite liquor that can practically be washed from the fiber from the mill digesters and makes possible a sufficiently high total solids liquor so that final evaporation and burning is economically feasible.

Liquor Recovery

The collection system can be best explained by following chronologically the operations involved in washing the stock after a digester has been blown (see Flow Sheet 1).

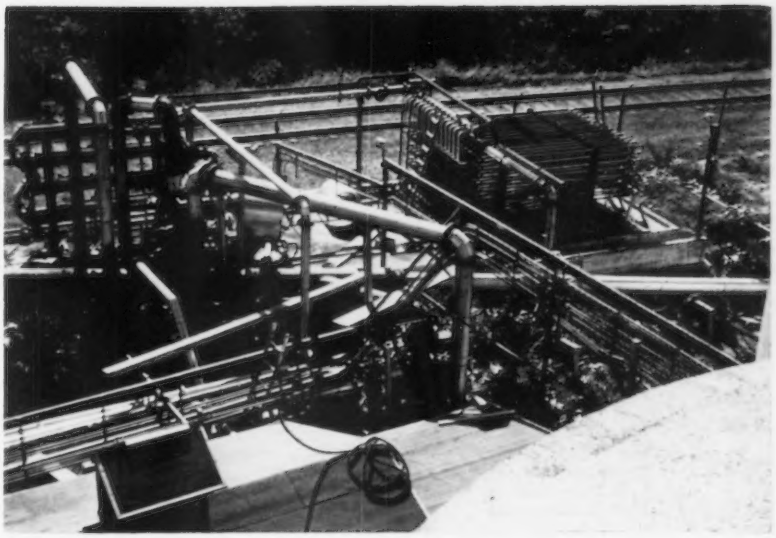
The stock is washed by replacement washing in the blow pits. This stock is blown into the pit on top of a 16,000 gallon cushion of spent sulphite liquor from the previous blow. During the blow this cushion is circulated by a strong liquor pump into the receiving blowpit through the impingement line above the

blow pipe. This feature aids in leveling the stock in the pit and promotes uniform washing. When the blow is ended the spent sulphite liquor, consisting of the cushion and the spent acid from the digester, is taken from the bottom of the pit by this same pump and diverted to the incinerator cut tanks in which the spent liquor is measured and stored, pending disposal. The incinerator cut (first cut) consists of 45,000 gallons of spent sulphite liquor of between 14 and 16 per cent total solids.

Shortly after the start of pumping to the incinerator cut tanks, the first wash water is showered over the surface of the stock in the blow pit. This first wash water consists of 35,000 gallons of water containing some spent sulphite liquor from the previous blow (fourth cut).

Collecting Cushion Cut

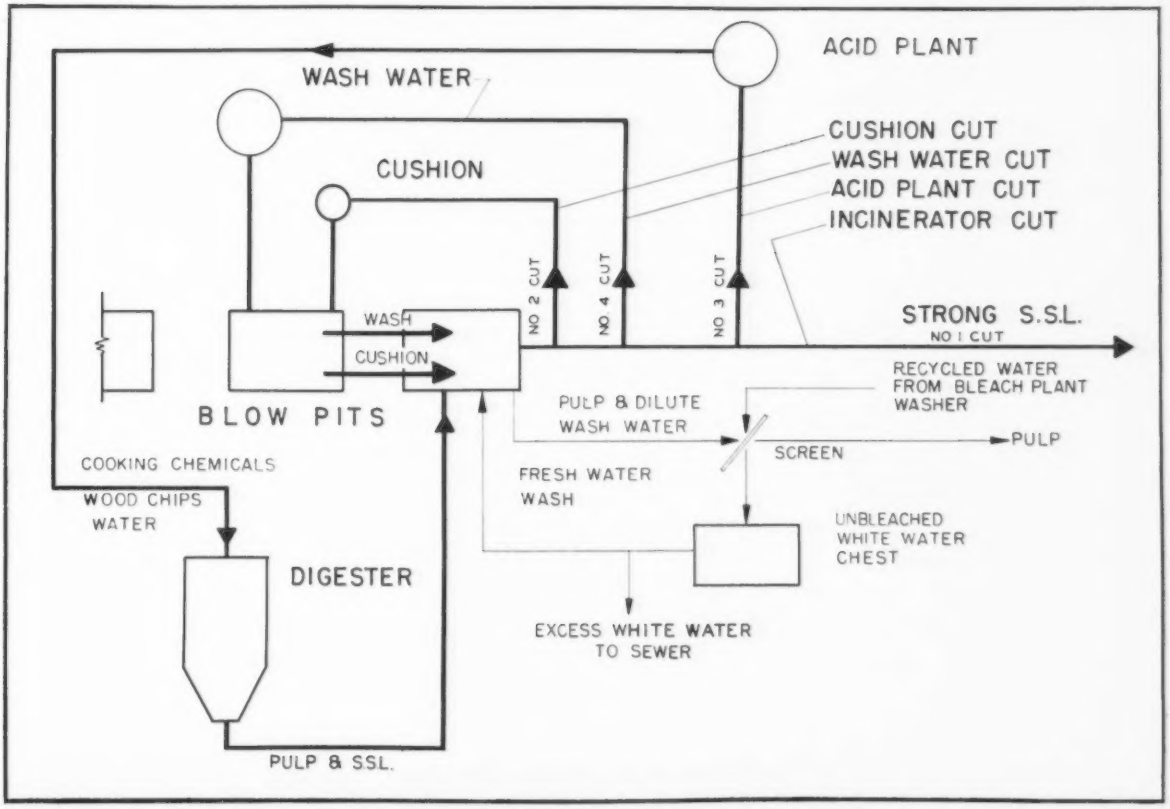
After the 45,000 gallon incinerator cut is completed, 16,000 gallons of liquor containing approximately 12 per cent total solids is pumped from the bottom of the pit by the strong liquor pump to an adjoining blow pit to receive the next digester blow. This second cut of 16,000 gallons thus in turn becomes a cushion. The stainless steel cut tank shown is used to store this cushion when necessary.



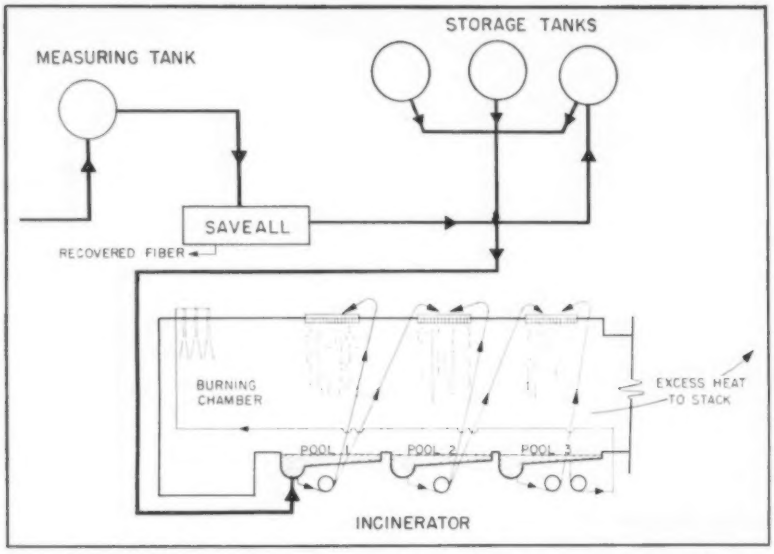
View of the coolers which cool the portion of the waste liquor re-used in the acid plant.

Used in Acid Plant

The third, or acid plant cut, consists of the 40,000 gallons of liquor following the cushion cut. This is pumped to a pair of 50,000-gallon stainless steel make-up tanks from which the acid plant is supplied. The acid plant cut is used in the manufacture of the ammonium base cooking acid used in the Shelton process. Aqueous ammonia is added to the liquor as it leaves the make-up tanks and the liquor is then



Flow Sheet 1: Blow pit washing and liquor collection and distribution system.



Flow Sheet 2: Effluent disposal plant which includes evaporation and burning operations.

passed through several banks of coolers prior to being sent to the acid plant.

Washing Competition

While the acid plant cut is being pumped from the bottom of the pit, white water is showered over the surface of the stock in the pit. This final wash completes the washing cycle and the water, when removed from the bottom of the pit by separate pump, is stored in the wash water cut tank, a wood tank of 75,000 gallon capacity, until reused.

The entire washing cycle requires approximately three hours. The blow pit washing system is closed with no connection to the mill sewer, as the diagram will show. All spent liquor from each digester is pumped to the incinerator tanks for final evaporation and burning, except for the fractions which are recycled through the other portions of the system as described.

The incinerator and its auxilliary equipment is termed the Effluent Disposal Plant. This plant is located on a hill behind the mill, about 150 feet above the mill proper. This higher location increases the effectiveness of the 375-ft. concrete exhaust stack.

Solids Material Removal

As previously explained, the spent sulphite liquor from the blow pits is pumped to the incinerator cut tanks at an average of 15 per cent solids. These two tanks are constructed of type 317 stainless steel and will hold 100,000 gallons each. The tanks are elevated sufficiently to allow the spent liquor to flow by gravity to the save-all. The incinerator cut tanks are used to measure the exact volume of the incinerator cut. The liquor flows from the tanks to a headbox and thence over a sidehill save-all. Any pulp fibers or other solid material which may be entrained with the liquor are thus removed and can be disposed of with other fiber rejects. The liquor is collected in a tank beneath the save-all from which the liquor passes directly to the pump suctions which deliver the liquor to the "Effluent Disposal Plant."

In addition to the incinerator cut tanks, three 200,000 gallon wood stave tanks are provided which increase the flexibility of operation. This additional storage is used as needed to take up the slack between the batch cooking process in the digesters and the continous operation of the burner units.

Disposal Plant

The disposal plant proper (Flow Sheet 2) consists of four separate furnaces which can be operated independently or in any combination from a single unit to the full four units. At maximum capacity, this mill produces slightly more than three disposal units can handle. When three furnaces are operated the excess spent sulphite liquor is then sent to the storage tanks until there is sufficient liquor volume to permit the operation of all four burning units for a period of several days. When the spent liquor inventory has been reduced to minimum levels, one unit is shut down for inspection and for repairs, if required.

Evaporation Section

Each single disposal unit consists of a refractory furnace opening on one side into a ceramic tunnel in which the liquor is showered. The hot gases from the combustion of this liquor pass from the refractory furnace through the tunnel where partial evaporation takes place. Three separate liquor pools cover the floor of the tunnel and serve to collect the liquor showered down from the top of the tunnel into the hot gases. The feed liquor is introduced from the tanks into the suction of the circulating pump of the first pool. This pump circulates the liquor from the pool to the top of the tunnel where it discharges into a rotary screen and then into headboxes. These headboxes, or distribution boxes, are made of Hastelloy C steel and have 5,000 to 7,000 ¼-inch perforations each. As the liquor falls through these holes into the current of hot gases, the streams break up into drops and thus presents a large surface for evaporation.

The liquor concentration in the first pool is held at about 30 per cent total solids and is circulated at a rate of over 5,000 gallons per minute. The hot gases from the refractory furnace enter the tunnel at 2,000 to 2,000° F. but are cooled to about 900° F. in passing through the bank of showers feeding the first pool. The liquor itself is thus maintained at a temperature between 195° and 200° F. As required, the liquor is pumped from the first pool to feed the second pool where it is again circulated at a high rate. The gases in the tunnel are cooled from about 900 to about 600° F. in passing through the showers feeding the second pool. Under these conditions the concentration of the liquor in the second pool is maintained in the range 37 to 40 per cent total solids. Again as required, liquor is pumped from the second pool to feed the third pool which operates in a manner similar to the first two pools. The gases are cooled further in passing the showers feeding the third pool and emerge at a temperature of about 450° F. The concentration of the liquor in the third pool is maintained in the range 44 to 48 per cent total solids. From this pool the liquor is pumped to the refractory furnace for burning.

The rotary screens previously mentioned serve to remove very small amounts of charred organic matter which form through pyrolysis of the solids in the liquor droplets falling from the roof of the tunnel to the pools. The removal of such pyrolyzed matter is necessary to avoid plugging of the perforations in the headboxes and to maintain uniform distribution of the liquor streams passing through the perforations. The charred or pyrolized matter removed from the rotary screens is collected and burned in a separate chamber attached to the refractory furnace.

The contour of the three pools is a critical point in design as it is desirable to keep the surface of each pool in

rapid motion. To this end, the pools are constructed so that the depth of liquor varies from 1 to 2 inches excepting for the trough through which the liquor flows to the side of the tunnel where the circulating pumps are mounted. The tunnels are 12 feet wide and 78 feet long. The first pool is 12 x 25 feet, the second pool is 12 x 14 feet and the third pool is 12 x 26 feet. The tunnels are built on a hillside and decrease in height in the direction of the stack. The liquor drops 12 feet from the headboxes to the first pool and 9 feet from the headboxes to the third pool.

The exit gases from the four units pass to the concrete, brick lined stack which is 375 feet high, 18 feet inside diameter at the base, and 12 feet in diameter at the top.

Actual Burning

The refractory furnaces measure 12 x 18 x 20 feet high and are fired from the top with sludge-type steam atomizing burners. The concentrated liquor is pumped from the third pool at about 80 pounds pressure and atomized with steam at 175 pounds pressure. All the air required for combustion is supplied from a blast box over the burners at a pressure of ½ inch of water. The draft of the stack is held with dampers in the range 0.4 to 0.7 inches of water. Temperatures of the furnace walls are about 2000 to 2100° F. These walls are air-cooled through the hollow tile bottom of the furnaces and from the wall spaces over the suspended arch. The temperature of the air varies from 100° F. to 160° F. from winter to summer. Fuel oil is used to preheat the furnaces on starting up and is available to supply additional heat when needed to speed up the evaporation rate. The consumption of fuel oil, however, is kept at a very low figure.

The operation of these evaporators and furnaces does accomplish complete liquor destruction. The total available B.t.u. is sufficient under the operating conditions described to accomplish the evaporation necessary before final burning. Since no attempt is made to recover heat beyond that needed for the evaporation prior to combustion, the system is in close balance. An average of 450 tons of spent sulphite liquor solids is burned by the incinerator during each day of operation. The maximum capacity of the burner units is in excess of 530 tons per day.

The entire spent liquor handling system from blow pits to incinerator stack is completely closed, and the only dissolved solids that reach the mill's industrial sewers are the 3 per cent or less coming from the water entrained in the stock after washing is completed. Fortunately, even these solids can, to a large extent, be recycled back to the blow pits as wash water.

There are a few points about the evaporator section which may be of special interest. It has been found that No. 317 stainless steel and Hastelloy C are resistant to corrosion and suitable for use for headboxes, or distribution boxes, and all large fabricated pipe and fittings. Ten mesh No. 317 stainless steel wire is used in the rotary screens. Carpenter No. 316 is used for the small size pipe and tubing. Esco 45 and 50 alloys have been found suitable for use in pumps and other cast metal parts.

Disposal of Fibrous Waste

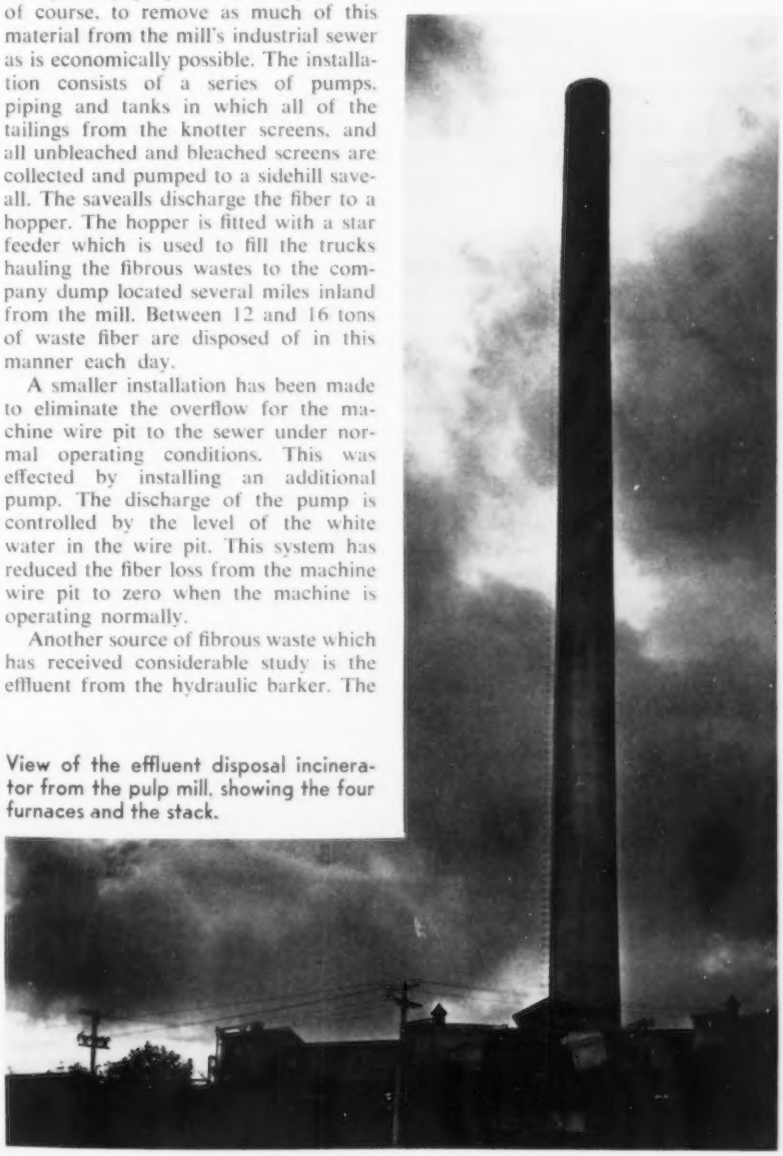
The system for collecting and disposing of fibrous waste material in this mill by comparison is simple indeed. The primary purpose of this system is, of course, to remove as much of this material from the mill's industrial sewer as is economically possible. The installation consists of a series of pumps, piping and tanks in which all of the tailings from the knotter screens, and all unbleached and bleached screens are collected and pumped to a sidehill saveall. The savealls discharge the fiber to a hopper. The hopper is fitted with a star feeder which is used to fill the trucks hauling the fibrous wastes to the company dump located several miles inland from the mill. Between 12 and 16 tons of waste fiber are disposed of in this manner each day.

A smaller installation has been made to eliminate the overflow for the machine wire pit to the sewer under normal operating conditions. This was effected by installing an additional pump. The discharge of the pump is controlled by the level of the white water in the wire pit. This system has reduced the fiber loss from the machine wire pit to zero when the machine is operating normally.

Another source of fibrous waste which has received considerable study is the effluent from the hydraulic barker. The effluent leaving the Tyler-Niagara screens there still contained a considerable amount of the smaller bark particles. It was discovered that a reduction of over two-thirds in the suspended solids content of this effluent could be attained by using large Bauer cleaners.

Summary

This disposal system is costly to operate because the incinerator accomplishes only the disposal of the waste liquor with no recovery of heat or solids. Another important adverse cost factor is the 49 employees required to operate incinerator facilities. However, use of the system does reduce concentrations of sulphite waste liquor in the water areas surrounding the Shelton mill to the lowest levels physically possible.



View of the effluent disposal incinerator from the pulp mill, showing the four furnaces and the stack.

Selection of new and old . . .

. . . Corn Starches for Surface Sizing at Size Press and Calender Stack

Newer types of modified starches together with existing grades provide a range from which the best product may be selected for the particular type of paper or board being produced.

Daniel E. Lucas and J. G. Bullard
Corn Products Refining Co.

Starches or starch products are the materials most widely used for surface sizing and calender sizing. Types of starches for these two applications cover a wide range, from native unmodified starches to relatively low viscosity starch modifications and various starch derivatives. The results desired govern selection of the type to be used.

Both surface sizing or tub sizing and calender sizing are, fundamentally, surface applications. Starch is almost universally used for these because it provides a useful combination of film-forming characteristics and serves not only as an excellent adhesive for fiber-to-fiber bonding, but also for cementing loose surface fibers to the surface of the sheet. On a cylinder sheet the calender starch will often penetrate through the liner and help to bond the liner to the filler stock.

Surface sizing can be directed toward increasing the strength of a sheet, as well as toward improving its surface characteristics. Increase in the bursting and tensile strengths obtained at the size press is, of course, highly important to the paper maker.

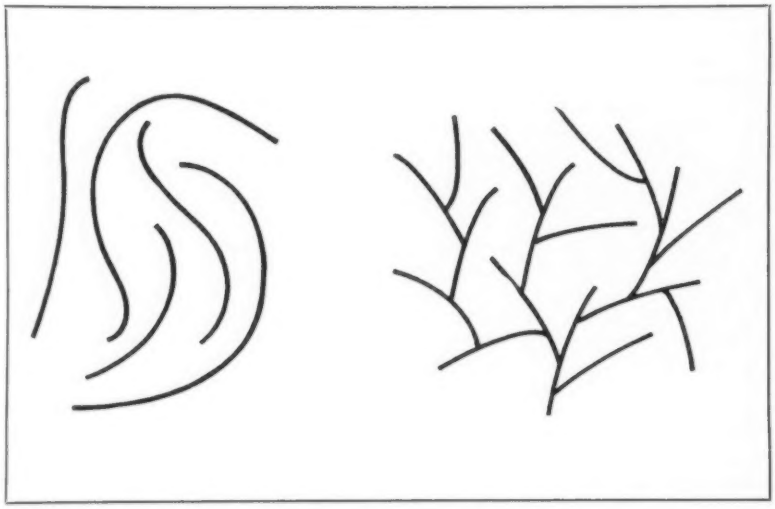


FIGURE 1—Linear and branched types of starch molecules. Starches from corn, other than the recently developed "waxy" varieties, contain both types in the proportion of about 25 per cent linear and 75 per cent branched. Starches from the "waxy" varieties contain no linear fractions.

Improving Paper Surface

Improvement in surface characteristics is most often directed toward better printing qualities with respect to the inks involved. Gloss inks, for example, must be held on the surface and, obviously, require more efficient sizing than flat inks which penetrate into the body of the sheet.

Papers for offset printing require efficient surface sizing to withstand the moistening effects incurred on offset presses. Otherwise the water may loosen surface fibers and cause printing defects. A starch film application on offset stock is not considered water-resistant, but it does permit use of a softer, freer furnish under protection of such a film. The combination of softer furnish and starch film affords maximum safeguards against surface rupture in the offset process.

Oil resistance of paper surfaces is similarly important, not only from a printing ink standpoint but also to the

performance of certain specialty items such as greaseproof, butcher-wrap and milk carton stock.

Various Starches Available

These examples illustrate the necessity for special surface treatment of numerous types of paper and board. Many years of practice have established the value of starch application to meet the paper industry's diverse requirements for surface sizing. Effects obtainable through this operation warrant discussing the several types of starch modifications available and in use today.

Such a discussion, of course, must be predicated on the film characteristics of these products. Paper mills have special interest in the continuity, smoothness, toughness or hardness, and perhaps water resistance of these films. But since there are no specific instruments that will measure these characteristics of a starch film in direct correlation with actual performance on the machine, it is necessary to consider other means of explaining the behavior of these widely used products.

Linear and Branched

The composition of corn starch, based on linear and branched polymers—and the relative importance of each fraction with respect to viscosity and retrogradation or gelling—have been discussed extensively in the literature. The linear fraction, responsible for the usually undesirable gelling or setback, is considered responsible also for the toughness or hardness of the starch film. Just as this fraction can cause setting or cracking in the cooled starch paste, it can be responsible for this same phenomenon in the film as applied in the paper industry.

The branched fraction exerts a distinctly different effect. Primarily responsible for the peak hot viscosity behavior of the cooked starch at the concentrations usually involved, the branched fraction can effect continuity and smoothness in the film.

Unmodified thick-boiling "pearl" starch, the basic product of the corn wet-milling industry, is seldom used in surface sizing. Behavior of the unmodified product in a film, proceeding from its linear and branched composition, offers a ready explanation for this exclusion. For if a paste of pearl starch is cooked at 5-10 percent solids (the range usually involved in these starch applications) it will be very viscous while hot and revert to a firm, opaque gel upon cooling. Aside from the impracticality of handling such a size in the mill, it is evident that any film applied from such a system will show the same tendency to gel hard *after* it is applied. This tendency, together with the high viscosity of the size, will result in a discontinuous film that usually proves ineffective for the purposes intended.

Modification by Starch Producer

Thus, it is both the linear and branched fractions of unmodified corn starch that are responsible for its general inadequacy as a surface size, and both fractions must be modified to produce a suitable material for this application. Modification may be directed solely at the viscosity characteristics of the starch, at the film forming properties, or at both, depending on the properties desired in the size.

This modification of the starch can be done by means of enzyme conversions at the paper mill. It can also be done by the starch supplier, using any one of the various methods now employed in the industry, as will be discussed herein. One such modification by the supplier involves acid degradation of the starch in the wet state, followed by filtration, washing, dewatering again and drying. By varying the amount of acid, and the length or temperature of treating time, an entire series of products that vary in hot viscosity is produced. These are the thin-boiling starches of our industry. It is important to note that this treatment is directed only at the swelling power or hot viscosity and that the retrogradation properties of the parent starch are retained.

Starch Modification at Mill

In the paper mill itself, viscosity modification is accomplished by use of liquefying enzymes on the pasted starch under carefully controlled conditions. This method of conversion does not introduce extraneous salts, such as the starch manufacturer encounters in acid

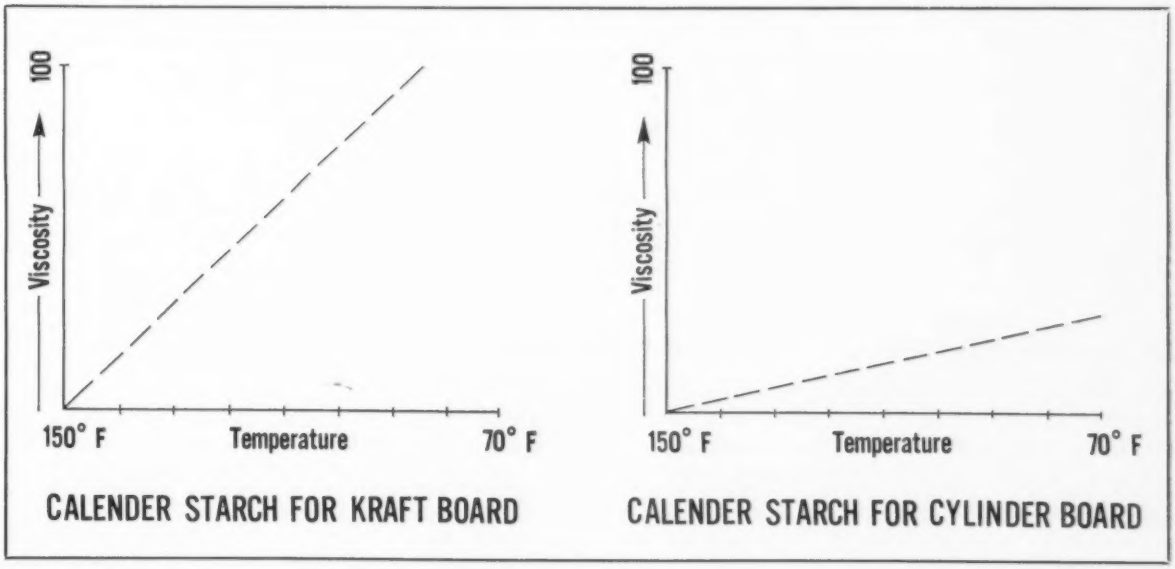


FIGURE 2—The characteristic difference between viscosity-temperature curves of calender starches for board is graphically shown above. The curve on the left is characteristic of calender starch for fourdrinier kraft board. The one on the right is characteristic of starch for cylinder board.

degradation. Manufacturers remove these salts by washing and filtration steps prior to drying, but their elimination would be impractical in the paper mill.

Needing no subsequent filtration and drying steps, the enzyme method of modification makes it feasible to convert the starch further, to a lower viscosity, than in the supplier's thin-boiling procedure. This further reduction in viscosity is accompanied by formation of very small water soluble fragments of the original starch polymer, which would be lost in the manufacturer's dewatering and drying operation. Since dimensions of these fragments approach those of the dextrose molecule on which the starch polymer is built, their presence is measured by the test for reducing sugars. This is often used, in conjunction with viscosity, to regulate the enzyme conversion cycle.

These two types of thin-boiling or reduced viscosity starches differ in film forming behavior, due primarily to the difference in amount of very low viscosity, short polymers present.

The starch modified by the manufacturer will have a greater tendency to ride the surface and to provide a less flexible film. This type of sizing is used extensively in the calendering of kraft board because it provides scuff resistance and improves printability of the surface.

Board Treatment at Calender

Fourdrinier kraft board is relatively open and porous. On stock of this nature, starches which rapidly set up on cooling have proven satisfactory because less is absorbed by the sheet and more stays nearer the surface. In comparison, board made on a cylinder machine is much less open and the liner has a high finish. Accordingly, on cylinder board, many operators use a calender starch which does not set back or become heavy on cooling.

Figure 2 illustrates the difference in the viscosity-temperature curves of the two foregoing types of calender starches.

Surface Sizing Book Papers

On "book" stock or publication paper, enzyme-converted, lower viscosity starch size proves particularly useful as surface treatment. In addition to its higher solids that enhance printability of the surface, this type starch affords some penetration into the body stock and thus increases the Mullen. The penetration is due to lower molecular weight polymers present, which in themselves make no contribution to film strength.

Increase in the bursting strength of paper as well as in its tensile strength may be obtained by application of low viscosity sizing that results in penetration of starch beyond the surface of the sheet. The more highly modified starch size can carry correspondingly more dry substance, and thereby add substantially larger amounts of starch to the sheet. In such cases, if other factors remain constant, the adhesive or binding power increases materially as the amount of starch increases.

Oxidized Starches

Enzyme converted starch sizes afford satisfactory film performance on all but the highest grades of paper. Where requirements call for maximum development of film characteristics, the more expensive oxidized or chlorinated starches are preferred. Applications for these starches include surface treatment of rag content ledger, bond and envelope papers, chart paper for industrial recording instruments, government mimeograph paper (to meet high fold specifications), glassine, greaseproof and other similar high grade papers.

Starches of this type are produced by the controlled reaction of hypochlorite on a starch-water suspension, and represent an actual modification of the starch polymer, together with its reduction in size and viscosity. The effect of such modification on film performance is twofold; improved continuity and greater toughness.

Ether Derivative Starches

A newer modification is of the starch-ether derivative type, which involves a two stage treatment directed at viscosity reduction and non-congealing properties. In many cases, film behavior of these premium priced products has shown advantages in the surface treatment of board that must hold gloss inks, papers requiring some water resistance such as wrapping, food container, milk carton stock and the like, lithograph grades, certain base stocks to which special coatings are applied, and some offset papers needing treatment to lay down loose fibers and correct linting or dusting of the sheet.

New Thick Boiling Types

Although use of the reduced viscosity starches has been emphasized, it should be stated that there is increased interest in, and use of, thick boiling starches of the starch-ether classification and the waxy varieties from corn or milo starch. These products differ from the industry's regular thick-boiling "pearl" starch to which objections expressed earlier are still valid.

In the starch-ether type, gelling and retrogradation tendencies of the parent starch have been minimized by chemical derivitization. In the waxy varieties of starch, no linear fractions exist to cause the undesirable properties, and as a result these varieties can be prepared and used directly.

These thick boiling products must, of necessity, be used at low concentrations. Nevertheless, the excellent film continuity afforded by the absence of any tendency to retrograde has enabled their successful application where smoothness, flexibility and continuity are of more importance than strength, per se.

The waxy starches mentioned above have not been available for general use by the paper industry until recent years. Further improvement in starch properties for surface sizing may lie in modification of these products, or in developments as yet not apparent to either the paper industry or the starch manufacturer.

Special Calender Formulations

Some of these modifications are already in use. Low viscosity white milo starch and ethylene oxide treated starch have both been applied to the calender sizing of board that is to be used for gloss ink printing. Examples of such formulations in use are as follows:

Formula No. 1

30 lbs. Low viscosity white milo starch (Ten-O-Film Brand Starch #6088)
½ lb. Soap
2 qts. Wax Emulsion
60 gals. Finished Size

Formula No. 2

50 lbs. Low viscosity ethylene oxide treated starch (Ten-O-Film Brand Starch #6781)
3 qts. Wax Emulsion
75 gals. Finished Size

For calender sizing of board that is intended for the making of paper cups and food containers, the following formulation is in use:

Formula No. 3

25 lbs. Low viscosity chlorinated starch (Claro Brand starch #5592)
50 gals. Finished Size

All these formulations are used on cylinder board where the calender starch is applied to the top and bottom liners.

As a rule, the same formula is utilized on both the top and bottom liners in order to prevent curling. Sometimes a more dilute calender size is used on the bottom liner. These types of modified starches appear likely to find an ever increasing application in the paper industry for these uses.

PRICES OF FIBERS

MARKET WOOD PULP

FIRST QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	§$90.00/ —	§$90.00/ —	§$90.00/ —
Bleached Gw'd.	$97.50/100.00	$97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	$157.00/162.50*		$157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		$137.00/ —		
Kraft, Semi-bleached	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd. ...	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd. .	135.00/ —	135.00/ —	†135.00/ —	*130.00/ —	
Sulphite, Unb'l. Gl'sn		134.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

NEW YORK RAG MARKET

PRICES NOMINAL

New Domestic Cotton Cuttings

Delivered Mill Basis

	Per 100 lbs.
No. 1 White Shirts	$13.25/$15.00
No. 1 Unblchd. Muslins	16.50/ 17.50
Blchd. & Unblchd. Underwears ...	15.50/ 16.50
No. 1 Light Silesias	6.75/ 7.25
No. 1 Light Blue Overalls	7.00/ 7.50
Percales	6.00/ 6.50
No. 1 Light Prints	5.00/ 5.25
Suntan Khakis	6.00/ 7.00
Cottonades	3.00/ 3.50
No. 1 Washables	2.50/ 3.25

Old Domestic Cotton Rags

Delivered Mill Basis

	Per 100 lbs.
Mixed White	$3.25/$3.75
Cotton Pants & Overalls	2.25/ 2.75
Twos and Blues, Repacked	2.00/ 2.50
No. 2 Roofing	.60/ .75

COTTON LINTERS

Memphis Market

f.o.b. Oilmills

Week Ended March 20	For 100 lbs.
Grade 1)	n. a.
2)	
3)	$9.75/ $8.50
4)	8.00/ 7.50
5) 1 cut—felting	7.00/ 6.00
6)	5.50/ 5.00
7)	5.00/ 4.50

*Based on 73% cellulose.

Old Rope & Bagging

(Prices to Dealers, f.o.b. N.Y.)

	Per 100 lbs.
New Burlap Cuts	$4.50/$5.50
Scrap Burlap	3.50/ 4.25
Australian Wool Pouches	5.00/ 5.50
Gunny	4.50/ 5.00
No. 1 Domestic Manila Rope	6.25/ 7.50
No. 1 Foreign Manila Rope	5.25/ 6.25
Domestic Sisal Strings	4.00/ 4.50

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	March 24	March 24	March 24	March 24
No. 1 Mixed Paper	$5.00/ $8.00	5.00/ 7.00	4.00/ —	12.00/ —
No. 1 News	13.00/ 15.00	14.00/ —	16.00/ —	12.00/ —
Overissue News (Lg. size)	16.00/ 18.00	11.00/ 14.00	21.00/ —	16.00/ —
Mill Wrappers	11.00/ 13.00	12.00/ 14.00	7.00/ —	13.00/ —
Old Corrugated Containers	21.00/ 22.00	20.50/ 21.00	19.00/ —	20.00/ —
Super Resorted Kraft Paper ...	30.00/ 35.00	35.00/ 45.00	35.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts	25.00/ 30.00	30.00/ 32.50	32.50/ —	30.00/ —
(Semi-chem. medium)	40.00/ 45.00	37.50/ 45.00	40.00/ 45.00	35.00/ 45.00
New 100% Kraft Corr. Cuts ...	50.00/ 55.00	50.00/ 55.00	55.00/ —	45.00/ —
New Br. Kraft, Env. Cuts	65.00/ 70.00	70.00/ 75.00	55.00/ —	50.00/ 55.00
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	50.00/ —	45.00/ 50.00
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	55.00/ —	45.00/ 50.00
No. 1 Groundwood Shvs.	23.00/ 27.00	24.00/ 30.00	16.00/ —	25.00/ 30.00
White Newsblanks	50.00/ 55.00	45.00/ 53.00	35.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	60.00/ 65.00	55.00/ —	— / —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hd. White Shvs.	90.00/ 95.00	100.00/110.00	90.00/ —	85.00/ 90.00
Hd. White Env. Cuts	115.00/125.00	120.00/130.00	100.00/ —	100.00/110.00
Col. Tab. Cards	50.00/ 60.00	55.00/ 60.00	47.50/ —	37.50/ —
Manila Tab. Cards	60.00/ 70.00	70.00/ 75.00	65.00/ —	75.00/ —
No. 1 Col. Ledger	28.00/ 30.00	30.00/ 35.00	40.00/ —	20.00/ —
White Ledger	42.50/ 50.00	45.00/ 50.00	52.50/ —	35.00/ —
Mixed Book & Mag.†	15.00/ 18.00	17.00/ 19.00	12.00/ —	— / —
No. 1 Books‡	25.00/ 27.00	22.00/ 24.00	27.50/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

PRICES OF MATERIALS

Aluminum sulphate:		
coml. bulk, c.l. wks. ....cwt.	$2.00	/ —
iron-free, c.l. wks. ....cwt.	3.55	/ —
Casein, acid prec.:		
dom. sh. pt. c.l. (30 mesh) cwt.	56.00	/ —
Arg. ex. dock .....cwt.	20.00	/21.00
New Zealand .....cwt.	24.00	/25.00
Caustic soda:		
c.l. wks. solid, 76% .....cwt.	4.30	/ —
flak. & grd. drums, c.l....cwt.	4.70	/ —
liquid 50% tanks....	2.90	/ —
liquid 73% tanks....	3.00	/ —
China Clay		
dom., dry-grd., airfloat:		
325 mesh bgs., c.l. Geo. ton	10.00	/12.00
300 mesh, bgs., c.l. Geo. ton	13.50	/14.50
imp., white, lump, c.l. ex. dock	20.00	/35.00
Chlorine:		
single-unit tanks, works ..cwt.	3.15	/ —
multiple unit, 2-5 cars per yr.	5.25	/ 4.05
Lime:		
hydrated, bulk, c.l. N.Y. ..ton	24.45	/ —
quicklime, bulk, c.l. N.Y. ton	21.20	/ —
Gum rosin:		
K. M. N. drums, c.l. Savan. cwt.	7.75	/ 7.85
Rosin size:		
70%, gum & pale paste, tank		
cars, south, sh. pt. .... cwt.	7.38	/ 7.48
Saltcake:		
dom. bulk, 100% anh. wks. ton	28.00	/ —
Soda ash:		
light, 58% ash bags, wks. cwt.	1.85	/ —
bulk, c.l. wks. .....cwt.	1.55	/ —
Sodium chlorate:		
drums, c.l., wks. ..... cwt.	9.00	/ —
drums, l.c.l., wks. ....cwt.	9.50	/10.50
Sodium peroxide:		
dms., c.l. E. of Miss. ..... lb.	.20½	/ —
l.c.l. (same basis)	.21	/ .21½
Sodium silicate, 40° Be.:		
tank-cars, wks. .....cwt.	1.20	/ —
drums, c.l. wks. .....cwt.	1.55	/ —
47° Be. WW.		
tank-cars, c.l. wks. ..... cwt.	1.90	/ —
drums, c.l. wks. .....cwt.	2.25	/ —
Soybean, protein:		
chem. isol., wks. c.l. bags.. lb.	.23	/ —
Starches:		
Corn, multiwalls, c.l. prod. plant:		
pearl .....cwt.	6.49	/ 6.75
white, dextrins .....cwt.	8.08	/ 8.20
chlorinated .....cwt.	8.25	/ 8.35
potato, Idaho, c.l. wks. cwt.	6.35	/ —
East, fr. all. 50 cents cwt.		
potato, Maine, f.o.b. wks. cwt.	6.25	/ —
Sulphuric acid:		
60° Be. cbys. c.l. wks. ....cwt.	2.00	/ —
l.c.l. wks. .....cwt.	2.45	/ —
tank-cars, wks. .....ton	18.60	/ —
Sulphur:		
crude, c.l. mines, contract, long ton	23.50	/ —
f.o.b. vessels Gulf dock...ton	25.00	/ —
Sulphur dioxide:		
liquid, coml. cyl., wks. ...lb.	.10	/ .12
multi-unit cars, wks. .....lb.	.0535/	—
Talc, fibrous grd., bags:		
c.l. wks., N.Y. .....ton	28.00	/ —
l.c.l. wks., N.Y. .....ton	31.00	/36.00
Titanium dioxide:		
anstase, c.l. dlvd. E. bags..lb.	.25½	/ —
l.c.l. dlvd. .....lb.	.26½	/ —
rutile, c.l. dlvd. .....lb.	.27½	/ —
l.c.l. dlvd. .....lb.	.28½	/ —

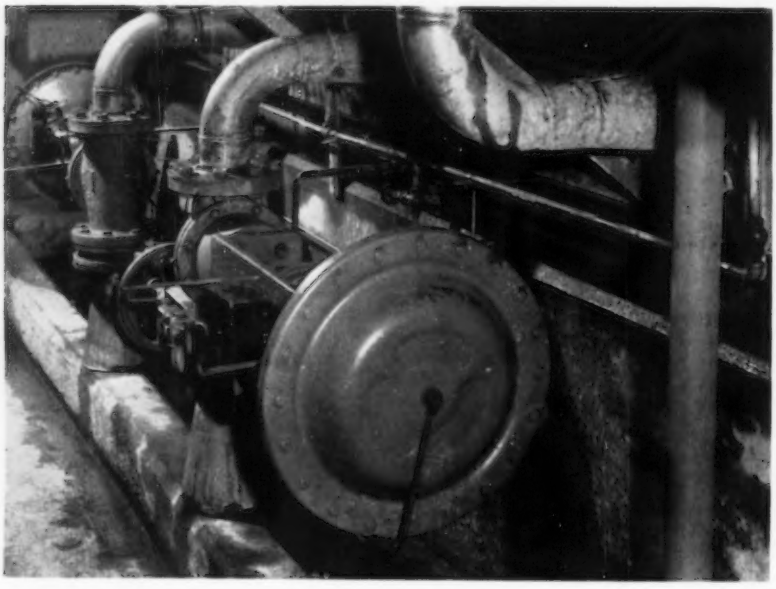
New Valve Solves Mead Stock Control Problem

Accurate level control at a critical point in the metering system of Chillicothe's No. 10 machine was obtained with a straight-through, diaphragm type valve.

Already noted in the industry for its progressive technical experimentation, Mead Corp. has released details of the successful application of a new type of valve for critical stock control.

A little more than a year ago, Mead completed modernization of its No. 10 paper machine, located in its Chillicothe, Ohio plant. Part of the program consisted of switching from batch measuring and mixing of pulp to a Trimbey metering system, along with the installation of a Taylor graphic control panel.

Because the accuracy of continuous metering depends so highly on the stock level in the Trimbey chambers, Mead instrument men wanted inlet valves that would offer a high degree of sensitivity — with minimum maintenance They decided upon a valve untried for stock level control—the (relatively new) Straightway design of the Saunders diaphragm valve by Grinnell Co., older models of which have long been used by the paper industry. Three 4-inch Straightways were installed with Taylor topworks to control the levels of the slush stock sections of the Trimbey meter. They now have one year of successful performance behind them.



Grinnell-Saunders Straightway diaphragm valves on back of Trimbey meter on Mead Corp.'s No. 10 paper machine. Valves control inlet of various slush furnish constituents.

So well have the valves performed in solving the old problems of corrosion, leakage, plugging, erosion, and sticking that they have been specified for use in the continuous metering system now being installed on a new paper machine. A 4-inch Straightway valve will control the level in the unrefined stock chests; 3-inch valves will control the level in the refined storage chest as well as the levels of the broke and other slush stock sections of the Trimbey meter. A 4-inch Straightway will be used on the hardwood pulp section of the Trimbey meter. These valves are now being used for controlling other services, especially clay slurries.

The Grinnell-Saunders Straightway valve has a diaphragm which rises completely into the bonnet so that an obstruction-free straight-through flow is made possible. When closed, the diaphragm produces a leakproof closure. Mead uses rubber-lined, cast iron valves with neoprene diaphragms, although the manufacturer also offers diaphragms of natural rubber, butyl and hycar. Linings can be made of hard rubber, soft rubber, neoprene or glass. Bodies are also

available in cast steel, stainless steel and other alloys, bronze and aluminum.

Engineers are convinced that the straightway type of valve will become an important factor in paper making. Plants require more automatic and remote control systems, more motor-operated valves must be used—and if valving methods are not improved, expensive downtime setbacks will continue. Although No. 10 paper machine is using pulp with about four per cent consistency at the present time, the company is seeking to increase stock consistencies—some as high as seven per cent—and this will cause more serious valve problems. Higher consistencies require straight-through flow and smoothest possible interiors of valves.

Sensitive and Leakproof

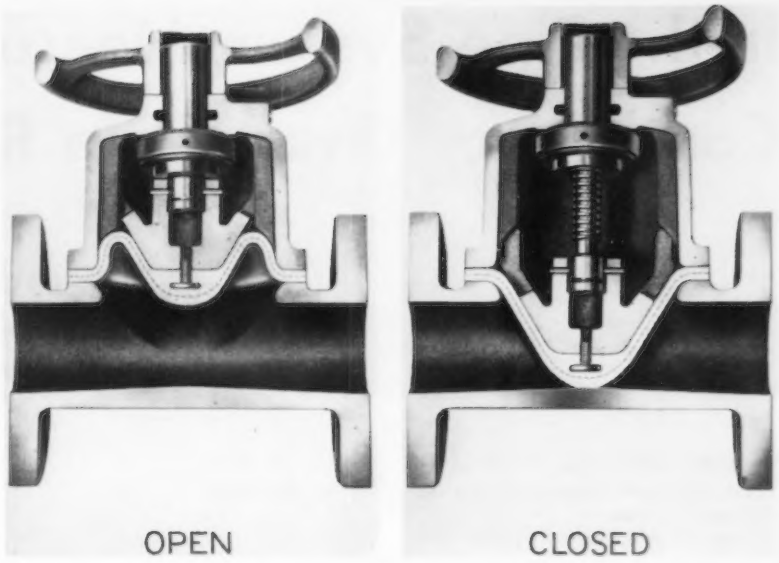
Mead instrument men, after watching the Grinnell-Saunders Straightway diaphragm valves for a year, have found that its two greatest advantages are its rapid operation (cutoffs can be completed much quicker) and its ability to remain leakproof. Using such "free stocks" as sulphite, any leakage would produce thick obstructive wads.

With the experience being gained in using the Straightway valves, instrument engineers are finding that they can often use one size smaller valve than normally would be considered. Because of its obstruction-free flow characteristics and low friction loss, they have found that the smaller size produces the same flow at the same pressure drop. Using smaller valves naturally saves money and often permits use of diaphragm topworks instead of cylinder-type power units.

Other Uses

Although Mead was the first to try this new Straightway valve for stock level control, Grinnell executives report that other paper mills are finding the valve useful. One West Coast firm found that a gate valve on a black liquor and knot line leaked continually through the stem. Operators frequently closed the valve against knots, breaking stems or cracking yokes. Such breakage required repairing the valve twice a week—at high cost. A Straightway valve has been in use almost a year and has had only one diaphragm change (after six months) . . . made in a few minutes at low cost. It closes easily and freely at all times, and there is no leakage.

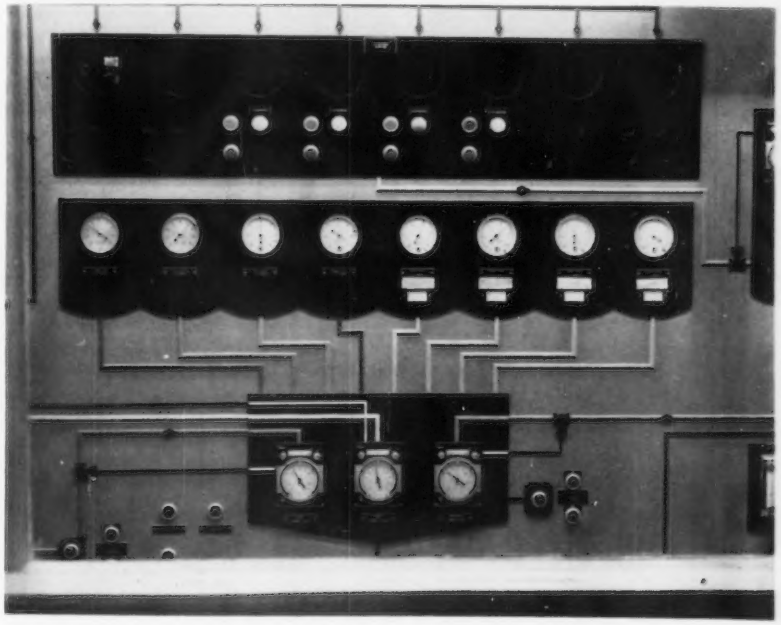
Another company has used one- and two-inch valves to throttle very viscous clay slip. Bronze gate valves and lubricated plug cocks in this service had to be replaced continuously. The firm found that the diaphragms of the Grinnell-Saunders valves outlast previously used valves and can be replaced at little cost and effort. Other parts of the valves have not needed attention.



Straightway valve provides rapid operation, leakproof closure. Diaphragm rises completely into bonnet allowing obstruction-free flow.

Hypochlorite bleach has been handled for seven months without maintenance or failure by still another paper mill, which uses a hard rubber-lined Straightway valve with a handwheel operated bonnet.

Grinnell sales engineers find paper mill personnel very satisfied with Straightway valve performance, since their applications seem to be ideally suited to the valve's abilities. One mill has approximately seventeen Straightways installed on Lindbladt screens. After two years in operation, they have required minimum maintenance, although the previous valves required frequent replacement because of leakage.



All lines on Taylor control panel funnel into Trimbey meter whose three sections are controlled by Grinnell-Saunders straightway diaphragm valves.

In-the-Pipe System Measures, Controls Consistency Over Wide Range

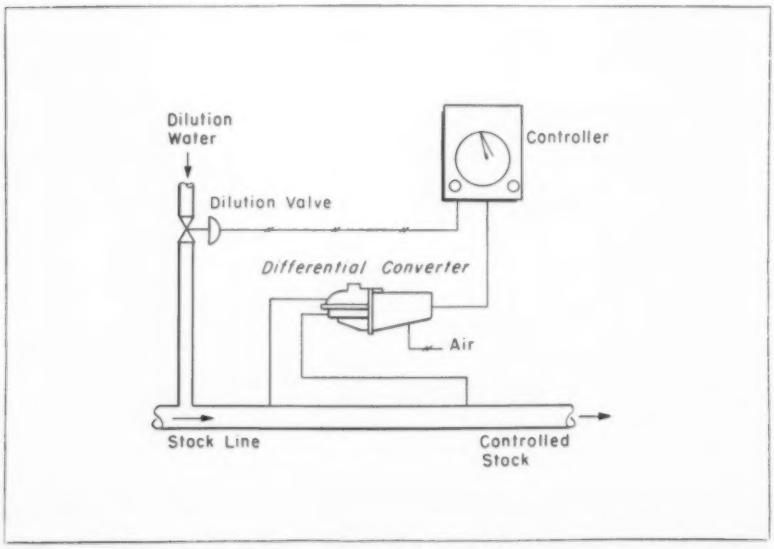
Engineering data and suggested systems to compensate for flow and viscosity fluctuations in consistency measurement and control.

Kenneth Lord
Paper Application Engineer
Industrial Division
Minneapolis-Honeywell Regulator Co.

In-the-pipe measurement and control of consistency, although not in general use, has been accomplished successfully in several mills. Inherent advantages in this method such as elimination of blending and storage tanks make its use highly desirable. Other advantages include use of conventional piping and a minimum number of instruments of a standard type. However, present in-the-pipe methods allow relatively little fluctuation in flow or viscosity before noticeable inaccuracies show up. This paper describes the present method of in-the-pipe consistency regulation and its limitations, and proposes refinements so the system can be applied to more difficult applications with great fluctuations in flow and consistency.

If we wish to control stock at a particular consistency within a narrow range of flow rates, the job is relatively simple. However, control which experiences wide flow variations will require a more complex system. Also, if it is necessary to control several different consistencies, the flow rate variations will affect the measurement in differing amounts, and compensating features are necessary.

This paper outlines three control systems for stock. The systems become increasingly complex as the measurement problem becomes more difficult. System 1, the simplest, is for application where flow velocities do not vary considerably. System 2, is proposed for wide flow variations but no variations in the consistency. System 3, the most complex, is proposed for both wide variations in flow and consistency.



1—Simple consistency control system without compensation for flow fluctuations.

System I—Measurement of Consistency Without Velocity Compensation

A system now in use for consistency control is shown in Figure 1. A transmitter measuring head loss is connected across a straight section of the stock line and an instrument controls a valve in the dilution line. The controller maintains the head loss constant by raising or lowering the consistency. Although the head loss is dependent on both consistency and velocity, a change in velocity will not have as great an effect on the friction loss as will a proportional change in the consistency. Therefore, as long as the stock velocity can be held within narrow limits, head loss will vary chiefly with the consistency and the system will give accurate control.

To illustrate this point, if the control is set for a consistency of three per cent, we can calculate the error which will be introduced due to changes in velocity. Assuming that head loss is held constant, normal flow rate is five feet per second and the tolerance error is plus or minus ¼ of one per cent consistency, it can be seen from Figure 2 that we will not go beyond the permissible error even if the flow rate should increase to 8½ feet per second or decrease to about 2½ feet per sec-

ond. If we wish to control within plus or minus 1/10 of one per cent consistency, a permissible range of velocities would be between 4½ feet and 5½ feet per second. This indicates the system will give exactly the same consistency each and every day as long as there is no wide variation in flow.

System II—Compensation for Velocity Changes

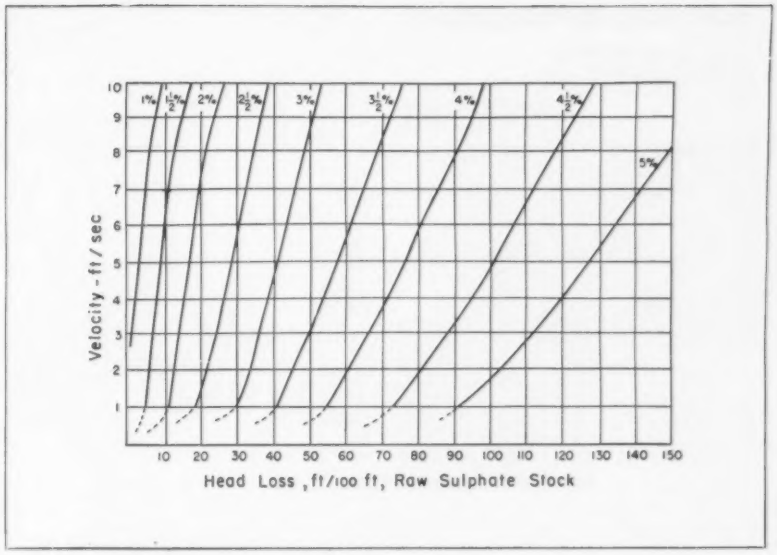
It has been shown above that a system composed of a differential converter and a controlling instrument will serve adequately to control consistency while flow rates are held within narrow limits. However, errors may be introduced which this relatively simple system cannot compensate for.

Figure 3 shows a proposed system to compensate for widely changing velocities when using in-the-pipe measurement and control of consistency. A differential converter transmitter measures the head loss across a straight run of pipe. A second transmitter is connected across an orifice plate to measure the flow rate, and transmits its signal to a Sorteberg Force Bridge Relay (marketed exclusively by the Minneapolis-Honeywell Reg. Co.) The square root of the flow rate is extracted by the relay and is fed to a third transmitter where this signal is subtracted from the first transmitter's signal. The final output of the third transmitter is a measurement of consistency, and is fed into a controller which adjusts a dilution valve.

The value of the above system can be demonstrated with graphs of velocity vs. head loss and consistency vs. head loss. From these graphs an equation was developed indicating that the head loss in a straight run of pipe is made up of three components—one being a constant, one being a linear function of velocity, and one being a non-linear function of consistency. Therefore, a measurement of head loss across a straight run of pipe minus a measurement which varies linearly with velocity, will be equal to a measurement of consistency.

The controller, used in the system, can be calibrated to read directly in consistency, although it would require a non-linear scale. This system will work over a small range of consistencies with very good accuracy and will compensate for variations in rate of flow.

As an example of this system for control between two and three per cent consistency, differential converter transmitter No. 1 would be set up over a straight run of pipe of 100 inches, and would have a range of 0-50 inches of water to give an output signal of 3-15 p.s.i. over a range of velocities of 0-10 feet per second. With this system, calculated errors for several flow rates within the consistency range of two to three per cent are small, even at the very extreme range of velocities. Naturally, the range of operations can be extended, but one must expect a corresponding decrease in accuracy over the wider ranges desired.

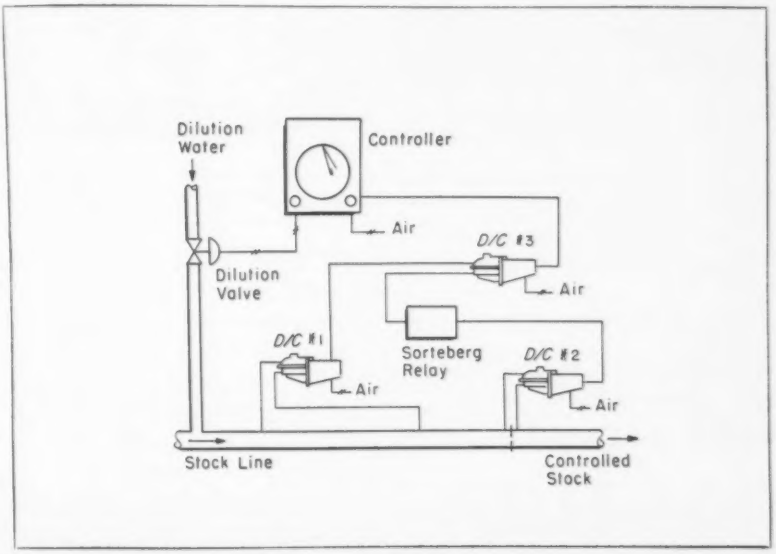


2—Graphic data on consistency control system.

This system will operate over a wider range than the non-compensated method, and the error will be reduced considerably. The extra equipment required over the non-compensated system is an orifice plate, two differential converter transmitters, and a Sorteberg Force Bridge relay.

System III—Compensation for Changes in Velocity and Consistency

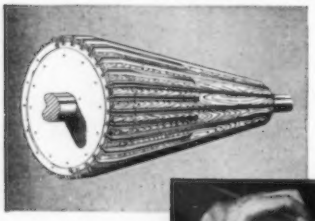
The equation, developed above, was found to be valid within narrow limits with fairly good accuracy. However, Figure 2 shows that although the velocity causes a linear increase in head loss at any one consistency, this change increases with consistency. Therefore, we need to increase the velocity compensating factor as the consistency set point is raised, to increase system accuracy over a wider range. The system in Figure 4 is suggested for this purpose. An Indexet pneumatic remote index



3—Flow compensated consistency control system.

TIME FOR REPLACEMENT?

E.D. Jones® Adapta-Plug

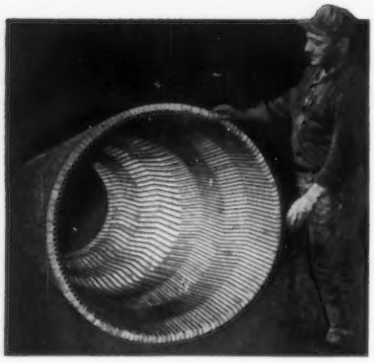


Strongest plug design yet developed, this new completely bandless Jordan plug is easiest to strip and fill. New, improved design holds bars firmly in place, eliminates hazards of slot wear and corrosion. Available in solid plug — or sleeve form for easy conversion of old worn plugs. Write for Bulletin EDJ-1094.

E.D. Jones®

FULBAR

SHELL FILLINGS



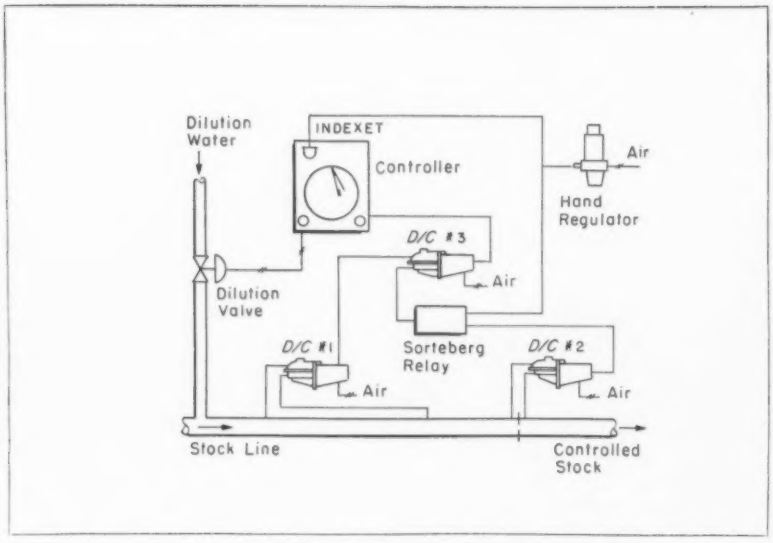
A complete one-piece assembly, made to fit the shell body of any Jordan. No keys or wedges. Fulbar rigidity and one-piece construction compensate for inequalities in old Jordan shells — save hours of installation time. Many other new advantages make this the ideal shell filling. Write for Bulletin EDJ-1094 and names of satisfied users.

E. D. JONES & SONS COMPANY

Pittsfield, Massachusetts

Builders of Quality Stock Preparation Machinery

In Canada: The Alexander Fleck, Ltd., Ottawa



4—Flow and viscosity compensated consistency control system.

setting mechanism, set by a manual regulator, is added to System II. The air signal to the Indexet unit is also fed to the Sorteberg relay. This added feature causes the output of the Sorteberg relay to be a function of the square root of the product of the consistency and velocity. Therefore, at the higher consistencies the velocity compensation will be greater.

Table 1 consists of the calculated errors at one and one-half per cent and four per cent consistencies over the range of velocities from 1-10 feet per second. The errors even at the extreme ranges are quite small. Even smaller errors can be expected at the consistencies between one and one-half per cent and four per cent. As before the range can be extended beyond the limits with a corresponding decrease in accuracy. This system compensates for changes in both the velocity and the set point and therefore can be used where wide variations in stock conditions are encountered.

No mention has been made to this point, of changes in the type of stock. This can be adjusted by changing the distance between the taps to the differential converter transmitter which measure the friction loss, in order to obtain the necessary output from this transmitter.

Conclusion

The three measuring systems discussed can cover most conditions encountered in measuring consistencies of greater than one per cent. In summary, the systems would be most applicable under the following conditions:

1—System I—No Compensation

Where flow velocities are greater than two feet per second and do not vary more than one foot per second around the normal rate.

2—System II—Velocity Compensated

Where wide flow variations are common (1-10 feet per second) and the set consistency does not vary more than half of one per cent from normal.

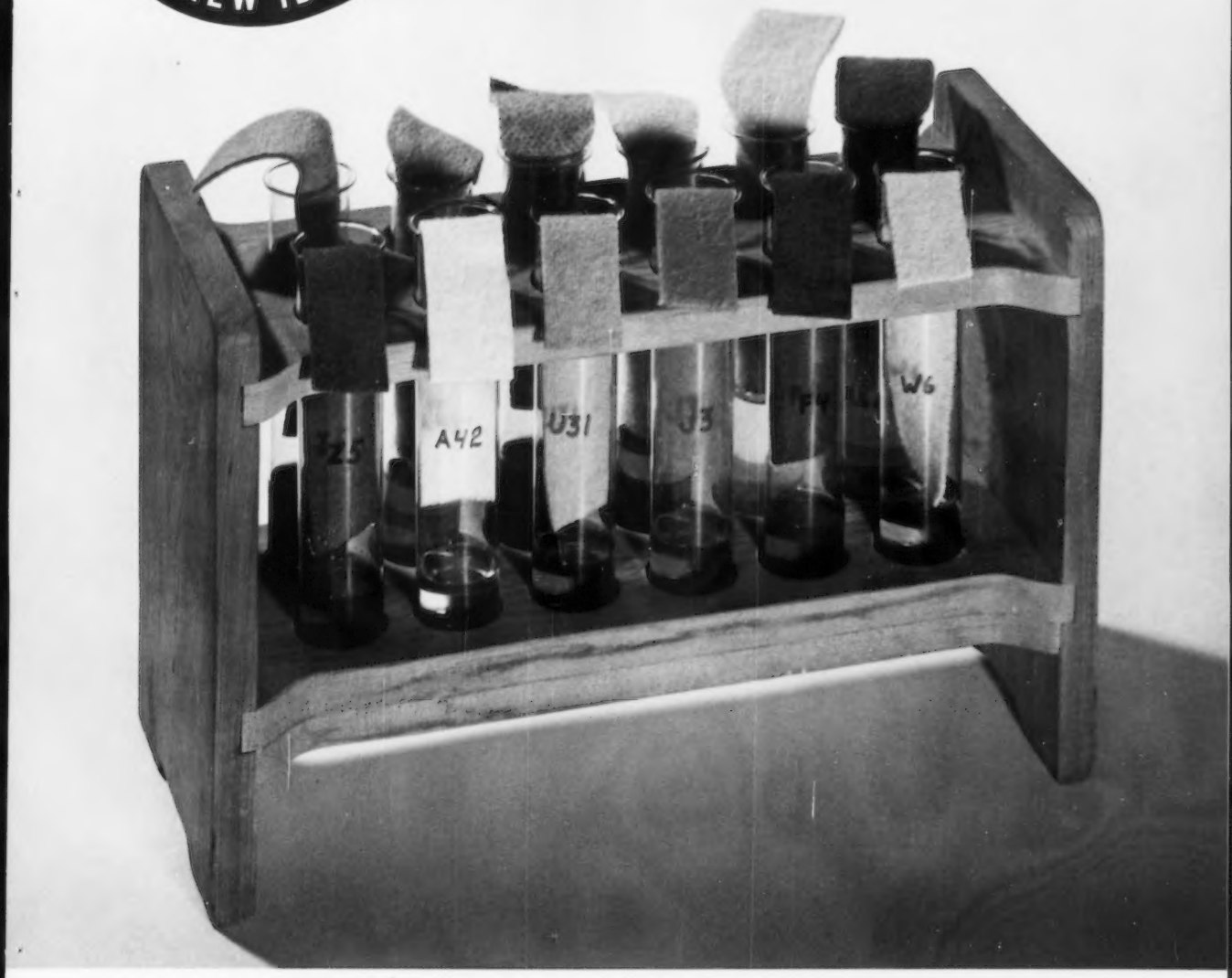
3—System III—Velocity and Consistency Compensated

Where wide variations in both flow rate and consistency are common.

TABLE I

Consistency %	Velocity ft/sec	Controlled Consistency %	Error %
1.5	1	1.57	4.7
1.5	3	1.53	2.0
1.5	5	1.50	0
1.5	9	1.53	2.0
1.5	10	1.55	3.3
4.0	1	4.11	2.8
4.0	3	4.03	0.7
4.0	5	—	0
4.0	9	4.02	0.5
4.0	10	4.06	1.5

ALBANY'S NEW IDEAS for better papermaking



WHAT CHEMICAL TREATMENTS MEAN

Chemical treatments for paper machine felts, like the design of the felt itself, must be evolved for a specific task. For this reason, Albany research laboratories have carried on a continuous program of development of new treatments to improve felt performance. Today, Albany offers more than 20 specific-purpose treatments to papermakers, including those which inhibit bacterial growth; give resistance to wear and stretch; keep the felt soft and open; improve starting and wetting; help prevent chemical and alkaline damage; and many others. Of particular importance to the papermaker are the new colorless treatments recently developed by the Albany Felt research laboratory. These should prove to be of great advantage to those mills running critical grades where colored fibers might be noticeable. Our goal, as always, is to help you produce more saleable tons per day!

ALBANY FELT COMPANY

MAIN OFFICE & PLANT, ALBANY, N.Y.
OTHER PLANTS: HOOSICK FALLS, N.Y.; N. MONMOUTH, ME.; ST. STEPHEN, S.C.; COWANSVILLE, P.Q.
"THE WORLD'S LARGEST MANUFACTURER OF PAPER MACHINE FELTS"

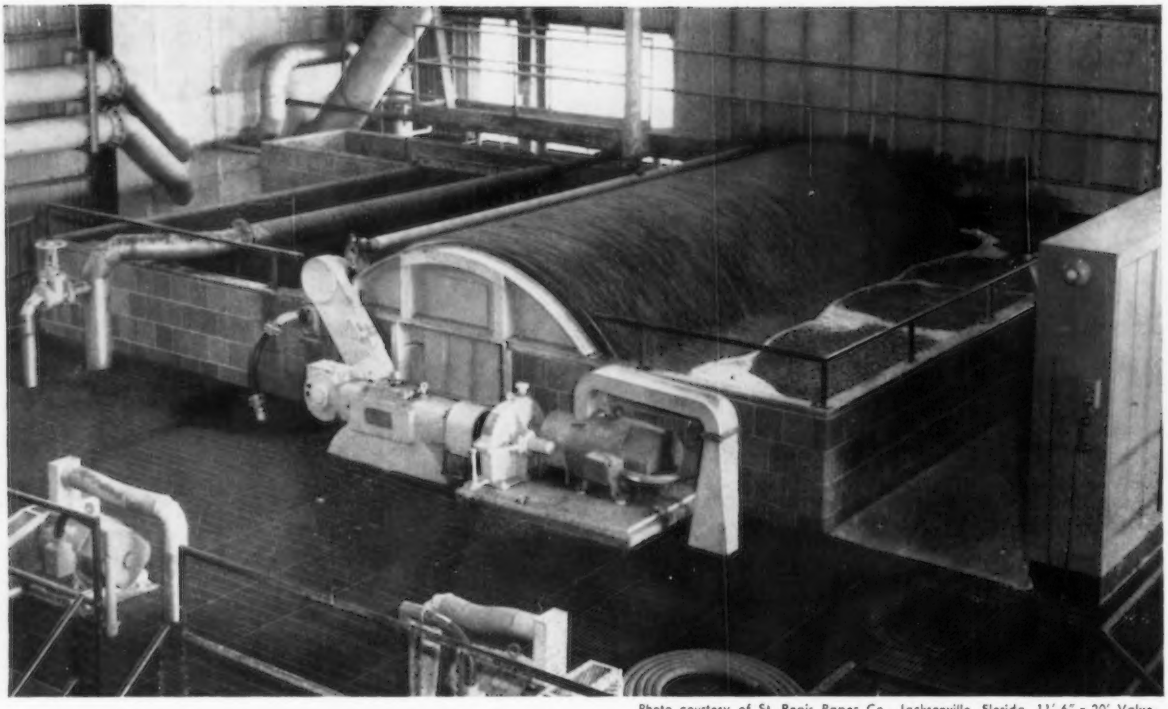


Photo courtesy of St. Regis Paper Co., Jacksonville, Florida. 11'-6" x 20' Valveless Decker Saveall operating with new "Seminole Chief" Kraft Board Machine.

IMPCO VALVELESS DECKER-SAVEALLS

There are more than 235 Impco Valveless installations. Many of these fall in the Decker-Saveall category. Several handle the entire paper machine production, using white water as dilution. Some act as broke thickeners, again using white water as dilution. Others are in a variety of saveall applications. In all cases the Impco Valveless delivers clarified effluent suitable for re-use, with pulp discharged at a controllable consistency for proper stock preparation. May we show you how this versatile machine can reduce your costs and simplify your operating procedure?

IMPCO®

IMPROVED MACHINERY INC.
NASHUA, NEW HAMPSHIRE

In Canada, Sherbrooke Machineries Limited, Sherbrooke, Quebec

PAPER PEOPLE

Conrad T. Waldie, Jr.

Lester R. Edwards

Frederick B. Wardwell

Promoted by Brown Co.

Conrad T. Waldie Jr., in charge of towel production at Brown Co. for the past four years, has been named chief technical service engineer in the company's newly formed staff technical service group.

Mr. Waldie will assist Technical Director George A . Day who was recently named head of the group set up to plan and improve operating techniques at the company.

Frederick B. Wardwell, formerly superintendent of Brown Co.'s Riverside Paper Mill, has been promoted to operating superintendent, towel department, at the company's Cascade Paper Mill. Brown is the producer of Nibroc towels for industrial and institutional use.

Mead-Atlantic Office

Mead-Atlantic Paper Co., reports the firm has opened a district sales office in Charlotte, N. C. Jerome B. Tenney and John Armistead are Carolina's representatives of the company.

Fills New Post at National Container

The creation of a new position to coordinate the product and market development phases of National Container Corp.'s sales program has been announced by Lester R. Edwards, president of National Container.

James Wallace, formerly assistant to Mr. Edwards, was named to fill the new post with the title of market development manager. He will report to Edwin D. Dodd, vice president and assistant general manager of the Owens-Illinois Glass Co. subsidiary.

In addition to determining the sales potential of present and potential markets for National Container products, Mr. Wallace will have responsibility for directing product development activities and determining the market potential of new products.

He will also supervise National Container's advertising, merchandising, and public relations programs.

Before joining National Container last year, Mr. Wallace was general sales manager of paper and lumber products for the Olin Mathieson Chemical Corp.

Howard Mills Make Tate VP

At the annual shareholders meeting of Howard Paper Mills, Inc., J. Harris Tate was named vice president in charge of manufacturing and engineering. Mr. Tate has been with Howard for 23 years and is recognized as an authority in the field of paper production techniques.

Helland Named Planning Supervisor

Ernest Vernal Helland has joined the maintenance department at the Luke, Md., mill of the West Virginia Pulp and Paper Co. as planning and scheduling supervisor. He has ben a field engineer for Albert Ramond and Associates, Chicago management consulting engineering firm, since October, 1955.

Fellows Named Exec. VP of St. Lawrence

Carl M. Fellows has been named executive vice president of St. Lawrence Paper Corp. Ltd. in Montreal. He has been senior vice president of Fitchburg Paper Co., Fitchburg, Mass.

Scott Transfers Otterlei

Henry Otterlei, personnel manager for the Coos Bay Pulp Co., at Empire, Ore., has been transferred to Everett, Wash. where he will continue in personnel work at northwest headquarters of Scott Paper Co., the parent company.

Meet Huyck's **BEAUMONT**

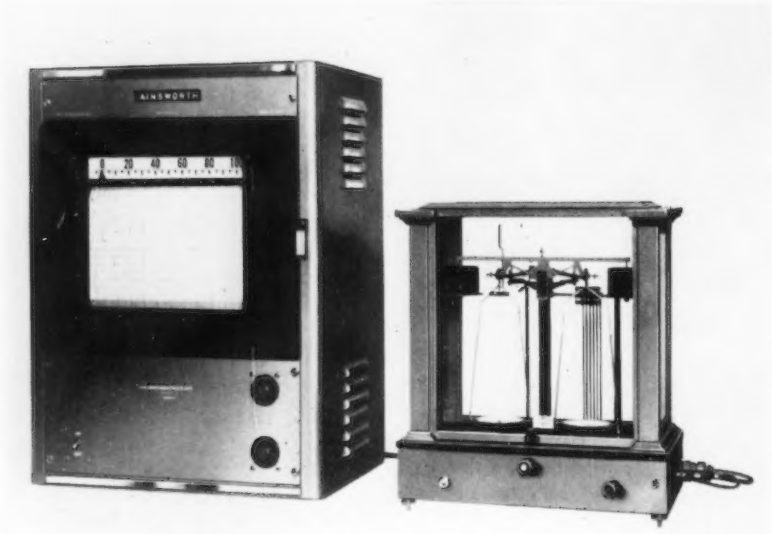
Ralph H. Beaumont is Huyck's Director of Chemical Research. In addition to his work on the detection of chemical damage in paper machine felts, he is responsible for Huyck's 4-D Treatment and many other advances in the chemistry of papermakers' felts. With a Doctorate in Physical Chemistry from Rutgers University, Ralph heads-up a complete laboratory staff geared directly to the needs of the paper industry.

HUYCK FELTS

First in Quality . . . First in Service Since 1870

ADVERTISEMENT

NEW EQUIPMENT AND SUPPLIES



Automatic, Recording Analytical Balance

An automatic, linear recording, analytical balance is available from William Ainsworth & Sons, Inc., 2151 Lawrence, Denver, Col. Probable applications are in thermogravimetric analysis, and in investigation of evaporation, absorption, corrosion, oxidation, decomposition and other reactions in which weight-vs.-time or weight-vs.-temperature (or other factor) is significant. Samples can be placed on the balance pan or suspended in a controlled environment, above or below the balance.

The capacity of the balance is 200 grams. Weight changes for long or short periods are recorded on a chart 11 inches wide representing 110 milligrams; accuracy and readability are plus or minus 1/10 milligram. The balance automatically adds or subtracts weights as required to rescale the recorder pen. The range of automatically-controlled weights is four grams.

Electronic Paper Inspector

A new inspection device, called the "Detectron", is reported to function in a variety of aspects of paper quality control. With scratchless, counter-balanced brushes, the unit inspects every square inch of the running web. Electronically it reports each void, bump, slime spot, cut, or other imperfection.

Sensitivity controls are provided which can be set to determine the limit of acceptable imperfections. When defects fall outside the predetermined deviation, the unit marks the trim edge of the sheet so the faults may be located automatically during rewinding. Imperfections are classified visually by a flashing light on the control console, audibally by a bell or horn, and electronically on automatic counters. They can be tabulated singlely, or on a foot per roll per hour basis.

All functions of the unit are controlled from an electronic console box. According to the manufacturer, the sensitivity of the device is so fine that it can detect bumps on the sheet as small as one ten thousandth of an inch. Further information may be secured from the manufacturer: Detectron Inc., 345 Forbes Avenue, New Haven, Conn.

Filter, Strainer Unit for Continuous Operation

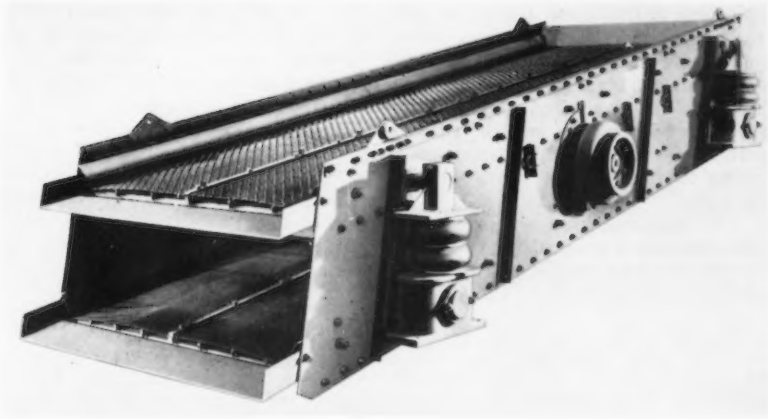
A new differential pressure alarm system on Ronningen-Petter filter and strainer units warns operators of pending low pressure. The company has coordinated this alarm system with their Multiplex fluid filters and strainers, so designed that when handling unusually dirty water caused by rains, floods, or winds, the differential pressure switch causes a light to go on and a horn to sound, or bell to ring, on the operator's floor, entirely remote from the filter unit. This permits the operator to have time to backwash and blow down the filters and assure continuous operation. In addition, one unit may be taken off the line, serviced, and back on again in a matter of minutes due to the quick-couplings. Further, the main unit does not have to be shut down while one element is being cleaned. Other information and bulletin No. 45578 may be obtained from Ronningen-Petter Co., Dept. J, Vicksburg, Mich.

Stainless Steel Renewable Disc "Y" Valves

A complete line of stainless steel renewable disc "Y" valves provided with an extra lift to remove the disc from the flow area and minimize line entrapment and pressure drop, is available from Cooper Alloy Corp., Hillside, N.J. Valves are designed to ASA B 16.5 and MSS SP- 42 specifications. Produced in ½ to 3 inch screwed and socket weld, and ½ to 8 inch flanged, these valves operate in the pressure range from vacuum to 275 psi at temperatures to 750 degrees Fahrenheit.

The valve bodies are available in a choice of stainless steel types 304, 316, 347, FA-20, nickel, monel and ELC versions, and are X-ray quality castings. Valve features include extra deep stuffing box, large diameter handwheel, standard size discs, two piece packing follower and flange and stem dimensions to API specifications.

Valves are recommended for handling a variety of corrosive chemicals, petroleum products, spirits, gases and slurries.



Air Springs for Vibrating Screens

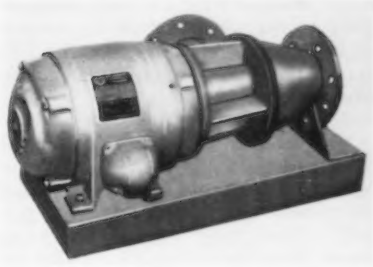
Following successful field tests, Allis-Chalmers has applied air springs to its vibrating screens to afford maximum isolation of vibration, quiet operation and reduced maintenance costs. The tests were conducted on a 6 by 14-ft. screen weighing about 10,000 lbs.

Constructed of durable nylon cord and special high tensile strength, heat-resistant compounds, the air springs are reported to provide 98 to 99 per cent vibration isolation, depending upon the air pressure used. They are easy to install and there are no mechanical parts to lubricate or service. One size can accommodate a wide range of screen sizes.

Construction and operating features of the air springs as applied to Allis-Chalmers vibrating screens are described in Bulletin 07B8931, Allis-Chalmers, Milwaukee 1, Wis.

Centripeller Pump

Sveen-Pederson Sales Corp., 25-36 Jackson Ave., Long Island City, N. Y., is now marketing the new Centripeller pump for paper mills. The pump combines both centrifugal and propeller action and is reported to have unusual lift characteristics. Actual tests indicate lifts up to 20 feet with easy handling of most paper stocks. Due to its suction ability, this pump handles liquids containing huge percentages of air or gases as well as those with fibers in suspension. Maximum power consumption possible is at peak efficiency (rated capacity) and suction and discharge valves may therefore be adjusted so that the pump will operate at any point of the head-capacity curve without overloading the motor.



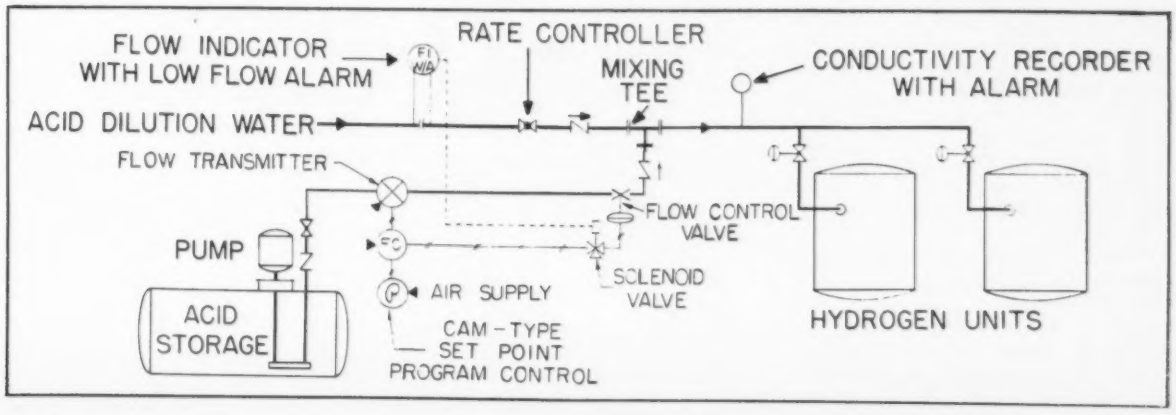
Acid-Regeneration System with Demineralizers

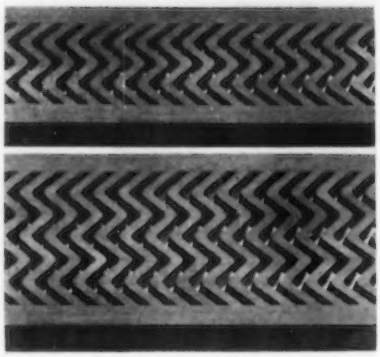
Graver Water Conditioning Co., 216 West 14th St., New York N. Y. has available a progressive acid-regeneration system that automatically increases acid regenerant concentration to the cation units of their demineralizers at prescribed rates in an infinite number of steps. This system is desirable when full optimum cation-exchange performance characteristics and reproducible results with minimum operation supervision are desired.

Normally, cation exchange resins are regenerated with sulfuric acid of specific concentrations. However, on certain water supplies there is the danger of forming inhibited calcium sulfate precipitates during regeneration and special precautions must be taken. One of these methods of regeneration is the Graver step-rinse "gradient" or "ascending" acid regeneration system that increases the prescribed rates in an infinite number of steps.

The major controls for this automatic progressive system consist of a transmitter to measure the acid flow, a control valve to control the flow, a flow controller to control the valve and a program regulator cam to operate the variation of flow.

Here is how the system functions Air enters the program regulator where the shape of the cam regulates the air pressure going to the flow controller. The varying air pressure changes the set point on the flow controller which in turn regulates the control valve and sets the desired acid rate. Since the water flow remains constant, the variation in acid rate changes the acid concentration going to the cation units being regenerated. The cam on the program regulator is designed for the conditions involved on each installation. This procedure, coupled with other automatic controls for pumping, measuring, timing, recording and mixing of chemicals, all under pressure is reported to assure dependable and reproducible results without the operator handling chemicals.





cold flow or sag in use. It may be used for fresh water, stock lines, waste lines, and many dilute chemical solutions. Inert and nonmetallic, it will not contaminate the contained product. Its smooth, friction-free interior surface resists scale and paraffin deposits, assuring full rate of flow for the life of the pipe.

Two standard series are in production, one with a nominal working pressure of 250 p.s.i. (Bondstrand 250) and another rated at 500 p.s.i. (Bondstrand 500). Both have a 10-to-1 safety factor. Greater pressure ratings may be obtained on special order since the manufacturing process permits "beefing up" wall thickness as required.

Tensile strength of the pipe is 80,000 p.s.i. circumferential and 40,000 longitudinal. Specific gravity of the fiber glass and epoxy material is one-fourth that of steel. Wall thickness, however, is only about half that of steel pipe, so that a finished pipe weighs one-eighth of its steel counterpart.

Moulded Fabric Suction Box Covers Easy on Wire

Tremendous wear life with minimum wear to the wire are features claimed of new patent-applied-for moulded fabric suction box covers developed by Gatke Corp., 228 N. LaSalle St., Chicago 1, Ill.

The mold-finish is extra dense and wear resistant; grid edges are said to stay flush with the grid surface, and fit the wire snug to seal against vacuum with a keen edge that shears off the water. Glass-smooth grid sides take the water away fast; there is no roughness to collect sediment.

Due to the uniform, even wearing surface, wire contact is distributed uniformly across the cover. The close seal is said to permit operation with reduced vacuum, resulting in reduced contact pressure and reduced wear to the wire and cover. Water acts as a lubricant with the moulded fabric covers resulting in extremely low friction and further reduction in wear to the wire and cover.

Covers can be furnished for practically any size or length of suction box.

Fiber Glass Reinforced Epoxy Pipe

Corrosion-resistant reinforced plastic pipe, strong as steel but only one-eighth the weight, is now being manufactured in 2 to 12 inch diameters to meet piping, tubing and ducting needs of the pulp and paper industry. The manufacturer, Amercoat Corp., 4809 Firestone Blvd., South Gate, Cal., uses a patented process employing interwoven fiber glass filaments, impregnated with epoxy resins and heat cured.

Known as Bondstrand, the new pipe comes in rigid 20-foot lengths with ends plain, bell-and-spigot or flanged. Other lengths, as well as diameters up to 40 inches, are available on special order.

The pipe is nontoxic, nonflammable and collapse-resistant, and does not

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as percent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1958	Feb. 15 88.4	Feb. 22 88.3	March 1 89.9	March 8 86.7r	March 15 88.8
1957	Feb. 16 98.0	Feb. 23 97.7	March 2 96.1	March 9 97.6	March 16 96.9

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	85.5‡	88.5‡	—	—	—	—	—	—	—	—	—	—	—
1957	94.2	97.0	97.1	94.0	94.6	93.3	75.6	90.7	86.0	93.0	90.7	81.4‡	90.9

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1951	1952	1953	1954	1955	1956	1957	1958
Year to Date	100.1	97.4	95.0	94.2	95.1	100.9	95.9	90.3
Year Average	98.0	88.6	92.3	91.6	94.0	97.9	90.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn.

COMPARATIVE WEEKLY SUMMARIES

1958	Feb. 15 86	Feb. 22 89	March 1 86	March 8 87	March 15 89
1957	Feb. 16 94	Feb. 23 93	March 2 92	March 9 95	March 16 95

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	80	86	—	—	—	—	—	—	—	—	—	—	—
1957	91	94	94	92	93	91	72	94	91	97	92	79	90

† *Percents of operation based on "Inch-Hours" reported on a 6-day basis.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Mar. 15, 1958 88%	LAST WEEK ENDING Mar. 8, 1958 87%	CUMULATIVE TO DATE Jan. 1 to Mar. 15, 1958 85%
	Tons	*Tons*	*Tons*
Total Production	272,450	265,719	2,720,295
Liner	89,013	85,100	878,933
Corrugating Material	38,259	37,809	404,267
Chip & Filler Board	3,966	5,026	43,550
Total Container Board	131,238	127,935	1,326,750
Folding	54,262	52,400	542,877
Set-Up	10,065	9,073	104,941
Special Food Board	25,309	26,219	252,505
Other	51,576	50,092	493,222
Total Boxboard	141,212	137,784	1,393,545
Total Orders	*Tons*	*Tons*	
Received	249,513	321,182	
Unfilled End of Week	393,182	418,353	

NEW LITERATURE

ADVANTAGES OF VARIOUS SYSTEMS FOR AUTOMATION OF CHEMICAL FEEDERS. (Bulletin B-I-F P7) Contains schematic diagrams of ten typical control and proportional pacing arrangements, ranging from remote-control rate setting to self-checking and self-regulating systems. **Omega Machine Co.,** 345 Harris Ave., Providence 1, R.I.

BAILEY INSTRUMENTS & CONTROLS. (Bulletin 500) Describes the purpose, design, and operation of their metering and control systems. Also discusses pneumatic and electric telemetering and pneumatic control. **Bailey Meter Co.,** 1050 Ivanhoe Rd., Cleveland 10, Ohio.

B&W STEEL TUBULAR PRODUCTS. (Bulletin TB-417) Presents important information on the application of tubing, pipe and welding fittings. Also includes application data and points to consider in selection of materials, analysis, physical, mechanical and creep strength properties of various steels and a series of cost-saving application case histories. **B&W Tubular Products Div.,** Beaver Falls, Pa.

BLACK-CLAWSON PULPING EQUIPMENT. (Catalog 23-SB) illustrates and describes their full line of paper and board stock pulping equipment. Includes application data hydrapulper drive constructions details and all engineering data. **Black-Clawson Co, Shartle Div. Sales Dept.,** Middletown, Ohio.

CONE-DRIVES. (Bulletin 750-C) Describes all mounting assemblies through the use of engineering drawings and tabulated specifications. Parts lists identify all parts furnished with standard worm and gear assembly. **Cone-Drive Gears Div., Michigan Tool Co.,** 7171 E. McNichols Rd., Detroit 12, Mich.

CIRCUIT PROTECTIVE DEVICES AND DISTRIBUTION ASSEMBLIES. (Bulletin GEC-1032B). Provides condensed information on these products. **Distribution Unit, General Electric Co.,** Plainville, Conn.

EVERYTHING THAT HANGS FROM THE CRANE HOOK! (Catalog) Includes automatic and motorized tongs for lifting material of any shape, weight, or size, well as sheet lifters, rack lifters, motorized rotating hooks, "C" hooks, and other hooks. **Heppenstall Co.,** 5th Ave. and 16th St., New Brighton, Pa.

EFFICIENT CORRUGATED BOX HANDLING. (4p Folder) Uses seven photos to show how National Container has achieved better product flow and a 50% reduction in packaging and handling time. **Acme Steel Co.,** 135th St., and Perry Ave., Chicago 27, Ill.

EDERER INDUSTRIAL CRANES. (Bulletin CR-610 2nd Edition) Contains a great deal of new material, particularly in the sections devoted to hoist gears and cases, and crane controls. **Ederer Engineering Co.,** 2931 First Ave., South, Seattle 4, Washington.

HOW TO GET LONGER LIFE AND BETTER PERFORMANCE FROM RUBBER COVERED ROLLS. (Booklet) Includes instructions for handling and storage, grinding and specifications for grinding. **Stowe-Woodward, Inc., Dept. G,** 181 Oak St., Newton Upper Falls 64, Mass.

HERE'S HOW TO BUY WELDING FITTINGS AND FLANGES. (Bulletin FB-503) Explains the proper ways to prepare the requisition or order for welding fittings and flanges. **Tubular Products Div., Babcock & Wilcox Co.,** Beaver Falls, Pa.

HIGH RESISTANT PROTECTIVE COATINGS. (Technical Bulletin 258) Describes the various formulations covering a wide range of corrosive conditions including concentrated caustic, acids, solvents, oxidizing agents and brines. "Plasite" has a continuous dry film temperature resistance of 350°F. **Wisconsin Protective Coating Co.,** Green Bay, Wis.

KELITE FIRELESS STEAM CLEANER. (Bulletin P-7578) Points out that maintenance is a simple matter since fire, soot, heat exchanger, scale and special controls are eliminated. Also carries a table of specifications and a list of optional equipment. **Kelite Corp.,** 81 Industrial Rd., Berkeley Heights, N. J.

MOLDER'S GUIDE TO INJECTION MOLDING GREX HIGH DENSITY POLETHYLENE. (Booklet) Discusses fundamental molding characteristics along with recommendations for part and mold design and molding machine selection. **W. R. Grace & Co., Polymer Chemicals Div.,** Clifton, N. J.

MIRRO-KEEN FINISH. (Brochure) Provides mills, converters and printers with cutting and trimming knives possessing the ultimate in both appearance and cutting characteristics. **Simonds Worden White Co.,** 1101 Negley Pl., Dayton 7, Ohio.

PASTE-TYPE DE-AIREX DEFOAMERS FOR PAPER PROCESSING. (Product Data Sheet) Outlines a few of the causes and results of process foam conditions and lists by application some of the Houghton paste-type De-Airex defoamers which meet such conditions successfully. **E. F. Houghton & Co.,** 303 West Lehigh Ave., Philadelphia 33, Pa.

STEEL BUYERS' GUIDE TO HOT ROLLED. (Technical Bulletin 11-2) Lists products that may be combined to effect savings in cost. Cutting services are illustrated and described, along with specification details and size range. **Joseph T. Ryerson & Son, Inc.,** Box 8000-A, Chicago 80, Ill.

"She's got a little too much shake, George"

OBITUARIES

William Phillip Davis, 60, president and general manager of Potlatch Forests, Inc., Lewiston, Idaho, since 1949, died March 18 after a long illness.

He was associated with International Paper Co. in the Southeastern states from 1919-1942, and directed paper converting operations for the same company from the New York headquarters office from 1943 to 1949.

Richard W. Symons, 74, for 35 years president and treasurer of Symons Paper Co., Gardner, Mass., died March 13 in Henry Heywood Memorial Hospital.

Ralph R. Cole, 57, vice president, treasurer, and a director of Consolidated Water Power & Paper Co., died March 19 of a heart attack at Delray Beach, Fla., where he and his wife were vacationing. He had held executive positions with Consolidated since he joined the company in 1927 as controller.

Stephen A. Staege, 76, died early this month in Hamilton, Ohio. A prominent hydro-electric and paper mill engineer, he had been employed for the past 24 years as a development and design engineer with the Black-Clawson Co.

During the 1920's Mr. Staege was with Westinghouse Electric Co. and organized the paper mill division of the Westinghouse engineering department. His interest in hydro-electric problems involved him in the Miami Conservancy District in the Miami River Valley in Southern Ohio.

George F. Boldway, 61, a maintenance foreman at the American Writing Paper Corp., Holyoke, Mass., died suddenly March 11 in his home.

Raymond P. Fredrich, 53, a box designer 35 years for A. George Schulz Co., Milwaukee, died of a heart attack at his home March 11.

Herbert M. Lakin, 59, died March 1 in Savannah, Ga. following an unexpected illness. He was an electrical engineer for the Union Bag-Camp Paper Co. in Savannah for the past ten years.

Lloyd N. Lang, 58, died March 11 in a Neenah, Wis., hospital after a short illness. He was a consulting engineer in the paper industry, employed by the Kimberly-Clark Paper Co. for over 25 years. For 10 years he was associated with various paper mills, including the Green Bay Paper and Pulp Co. At the time of his death he was a consulting engineer for Sumner and Sollit, engineering contractors of Chicago.

Shirley P. Farrar, 68 died suddenly March 18 in his hame in Springfield, Mass. He was employed as a foreman by Gardner-Brooks, Inc., for the past 45 years.

Benjamin E. Teale, 78, former superintendent at Crane & Co., Dalton Mass., died recently in Clearwater, Fla., where he had lived for the past two years. He retired from Crane in 1953. Prior to 1939 he worked for American Paper, Ancram, N. Y.; E. D. Jones & Sons, and Smith Paper, Lee, Mass.

CHAS. T. MAIN, INC.
ENGINEERS

Process Studies, Design, Specifications and Construction Supervision

PULP AND PAPER MILLS

Steam, Hydraulic and Electrical Engineering
Reports, Consultation and Valuations

80 Federal Street Boston 10, Mass.

Design · Construction · Modernization

THE RUST ENGINEERING CO.

930 FORT DUQUESNE BLVD.
PITTSBURGH 22, PA.

BIRMINGHAM • BOSTON • NEW YORK

NEWS OF MERCHANTS

New Warehouse in Springfield

Carter Rice Storrs & Bement is now occupying their new combined office and warehouse at 103 Nursery St., Springfield, Mass. The new building, similar to others recently built in Pawtucket, R. I. and Hartford, Conn., is designed to keep pace with today's technological advance in printing and industry and its need for increased service from paper suppliers.

Sonneveldt Elects Officers

Sonneveldt Co., Grand Rapids, Mich. has announced that Jack Sonneveldt was elected president at the recent annual meeting of the corporation. Henry J. Sonneveldt was elected vice president and Christian H. Sonneveldt holds the offices of secretary and treasurer. Jack Sonneveldt will continue to be responsible for the duties of sales manager.

The West Michigan company also announced new sales gains for the year 1957, which was the greatest year in the company's history. From the inception of the firm in 1935 to 1947 the Sonneveldt Company was a 2 Salesmen House. Jack and Henry were the original salesmen at that time. From 1948 until today the firm has become a 10 salesmen organization. During the same 10 years the company advanced from a single truck delivery set-up to a fleet of 8 trucks, 3 of which are semi-tractor trailer units.

Ohio Corp. to do Business in Wis.

Bermingham & Prosser Co., an Ohio corporation, has registered with the Wisconsin secretary of state to do business in Wisconsin—"to manufacture and deal in paper, paper products and materials". Application shows a capital stock of 1000 shares of common at par value of one dollar per share, all paid in. The registered agent for Wisconsin is C T Corp. System, 900 Gay Bldg., Madison 3, Wis., the main office of the company being located at Dayton, Ohio.

NEWS OF SUPPLIERS

Felt Workshop in Alabama

Huyck Felt Workshop No. 5 played host recently to 27 papermakers representing a variety of mills in the southern states. It was the first workshop held at the Huyck's new plant in Aliceville, Ala.

P. Clark

R. Prince

Allis-Chalmers has added a new engineering service group in its electrical application department. The newest of five groups will concentrate its services in the pulp, paper and general process industries. Paul Clark, formerly an application engineer in the department, was named supervisory engineer. Robert Prince, formerly of the company's Processing Machinery department, is consulting engineer.

Hyster Co., Portland, Ore. has made Glenn Herz its chief engineer. He replaces Al Zwald who has announced his retirement. Mr. Herz has been with Hyster for 12 years, the last five as assistant chief engineer.

Dodge Manufacturing Corp., Mishawaka, Ind. has appointed Alex T. Bodle, chief engineer for the last 20 years, its consulting engineer; Jackson Chung has been appointed chief engineer; and Donald P. Lower was advanced from assistant chief engineer to manager of engineering.

National Starch Products Inc. will occupy new and larger quarters in a recently completed 34 story building at 750 Third Ave., New York 17 as of April 7. The telephone number will change to YUkon 6-9500.

Stanley Steel Strapping, division of The Stanley Works, New Britain, Conn., has appointed Alverne L. Webster a sales representative and packing and shipping engineer. He will service the northwestern Ohio area.

Allis-Chalmers has appointed Richard R. Goetz service manager—midwest region, with headquarters in St. Louis, Mo. He succeeds R. L. Stroope, who returns to Allis-Chalmers West Allis works.

Koppers Co., Inc., Baltimore, Md. has appointed John F. Carroll as sales engineer of the New York district, it has been announced by Earl Wilson, sales manager of the F. X. Hooper box machinery department of Koppers Company, Inc., Baltimore, Md. According to the announcement, Mr. Carroll will handle sales of Hooper box machinery in eastern New York state, northern New Jersey and all of New England and will make his headquarters in New York City.

R. G. Lynn

A. W. Brown

American Hoist & Derrick Co. has promoted Archer W. Brown to chief mechanical engineer. He was formerly assistant mechanical engineer.

Richard G. Lynn has been named chief electrical engineer. He has been at American Hoist in the electrical department for the past 17 years.

Arizona Chemical Co. announced recently territorial sales assignments, expanding its service to industries utilizing Acintol tall oil and Acintene terpene products.

Frank A. Carragher will serve as southeastern sales representative covering Alabama, Florida, Georgia, Mississippi, South Carolina and Tennessee. Wendell C. Otis becomes sales representative of the region covering upper New York State and the New England states. The firm's southern district manager is Albert E. Neil who is headquartered in Dallas. Thomas F. White is district manager for the New York and New England district and is headquartered in New York.

Alvin H. Johnson & Co.

INCORPORATED

Consulting and Designing Paper Mill Engineers

415 LEXINGTON AVENUE NEW YORK 17, N. Y.

PAPER MILL DESIGN PROCESS ENGINEERING POWER PLANTS

STRUCTURAL AND ARCHITECTURAL DESIGN

REPORTS APPRAISALS ESTIMATES AND SURVEYS

M. A. Bell
Carthage Mach.

J. D. Haskell
Black-Clawson

Black-Clawson Co., announces that John D. Haskell, vice president of Black-Clawson Co. and president of Black-Clawson (Canada) Ltd., has recently retired from both positions after 37 years with the company. Mr. Haskell has served at various times as general manager of two Black-Clawson divisions and as executive vice president of the company. He will continue to maintain an office at the Dilts Division, Fulton, N. Y. and make his counsel available to the company and its customers.

Carthage Machine Co. has appointed M. A. Bell sales representative for Florida, Alabama, Mississippi, Tennessee, Arkansas, Louisiana and Texas.

E. H. Krieg
Stone & Webster

F. N. Eastwood
Nat'l Starch

Stone & Webster Engineering Corp. has elected as a director Edwin H. Krieg, vice president and consulting engineer. Stone & Webster designs and builds power plants, nuclear facilities, chemical plants, petroleum refineries and other types of industrial plants in the United States and abroad.

National Starch Products Inc. announces that Fred N. Eastwood, formerly adhesives sales supervisor in the Southeastern Division at Atlanta, is assuming new responsibilities in the company's Southern Division, headquartered at New Orleans. He will represent National in the paper industry in the states of Texas, Arkansas, Louisiana, Mississippi and Alabama.

Stowe-Woodward Inc., Newton Upper Falls, Mass., has named Kenneth S. Goodyear plant manager.

The company manufactures rubber-covered rolls and specialized molded rubber parts for industry.

Mr. Goodyear has an extensive background in rubber, having served with U. S. Rubber Co. for 18 years. During this time, among other things, he built and operated the first foreign division for United States Rubber in Cuba.

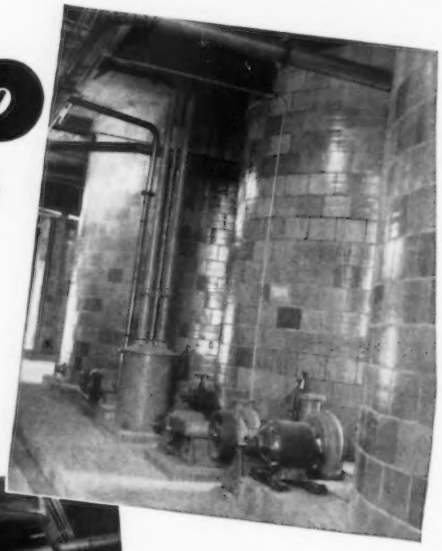
Ebasco Services Inc. has announced that T. E. Flowers Jr., and R. F. Hay, specialists in community and industrial planning, have recently joined the staff of its Space Planning Department.

Hyster Co.'s former manager of the San Francisco dealership, Fred F. Welch, has been made manager of the company's sales and service division at Portland, Ore. He will be responsible for all pre-selling and post-selling activities of the company's domestic and export sales divisions for both tractor equipment and industrial trucks.

Infilco Inc., manufacturers of water and waste treating equipment has appointed Thomas P. Hutchinson as representative of Infilco (Canada) Ltd. in Eastern Ontario, Quebec and the Maritime Provinces.

Kalamazoo

GLAZED TILE TANKS



These cylindrical tanks located in a northern mill are typical of installations supervised and built by Kalamazoo's experienced erectors.

Kalamazoo Tank & Silo Company offers you complete service: from initial planning into erection and complete installation of all types of glazed tile tanks, chests, and silos.

TILE TANK DIVISION

Kalamazoo TANK & SILO CO. KALAMAZOO MICHIGAN

NEW REVOLUTIONARY

GRATON AND KNIGHT

NYCOR

FLAT BELTING

NO STRETCH

NO TAKE-UPS

NO LOST PRODUCTION

G&K NYCOR belting installed in numerous paper mills throughout the country is proving that it outperforms all other plastic core belting . . . resulting in more production, less maintenance and longer life. Its laminated plastic core with unusually high tensile strength combined with the finest G&K leather, allows the use of narrower belt widths giving more precise speed control with maximum transmission efficiency.

Send For Brochure on Nycor Belting

GRATON & KNIGHT *Company* INC.

WORCESTER 4, MASSACHUSETTS

ELIXMAN
CORES CAPS

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

Samples of caps or cores will be gladly submitted

ELIXMAN PAPER CORE COMPANY, INC.
CORINTH, N. Y.

The Papermaker specifies

BOLTON EMERSON TRADE MARK

First Choice
in REPLACEMENT TACKLE for all makes, sizes & types of Stock Treating Equipment

- Custom Heat Treated Steel
- Bolton Special Stainless Steel
- Hard Rolled Phosphor Bronze
- Specialized Metallurgy
- Laboratory Services
- Precision Craftsmanship

Contact: **John W. BOLTON & Sons, Inc.**
and
The EMERSON Manufacturing Co., Division
Lawrence, Massachusetts

ENGLISH ECCO CLAYS CLAYS

ECCO CLAYS TRADE MARK

UNIFORM SUPERIOR DEPENDABLE

English China Clays Sales Corporation
6 East 45th Street, New York City

KOSMOS DIXIE PARIS

KOSMOS BRAND DIXIE BRAND

CARBON BLACKS OF EXCELLENCE

ESPECIALLY ADAPTED TO THE NEEDS OF THE PAPER INDUSTRY— SUPPLIED UNCOMPRESSED, QUARTER-COMPRESSED OR DUSTLESS.

UNITED CARBON CO., INC.
CHARLESTON, WEST VIRGINIA

NEW YORK CHICAGO AKRON LOS ANGELES BOSTON MEMPHIS

IN CANADA: CANADIAN INDUSTRIES, LTD.

W V

Westvaco Quality Papers

Westvaco manufactures a wide range of high quality paper products—from fine printing to rugged converting papers. All of these papers are made from virgin chemical pulps to precise standards of uniformity and quality—Westvaco's guarantee of top performance.

Printing Papers . . . Coated and uncoated letterpress, coated and uncoated offset, and gravure.

Business Papers . . . Bond, mimeo, duplicator, ledger.

Bristols . . . Index, post card.

Converting Papers . . . Label, tablet, envelope, lining, tabulating card, coating raw stock.

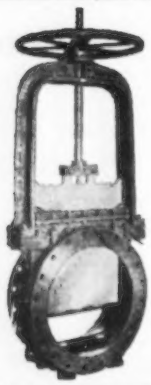
Bleached Boards . . . Cup, coated and uncoated carton boards, converting and barrier boards, file folder and tag stock.

Kraft Papers . . . Bag, multi-wall sack, envelope, asphalting, gumming, interleaving, waxing.

Containerboard . . . Linerboard and corrugating medium.

Market Pulp . . . Bleached and unbleached sulphate.

West Virginia Pulp and Paper Company
230 Park Avenue, New York 17, N. Y.
35 East Wacker Dr., Chicago 1, Ill. • 503 Market St., San Francisco 5, Cal.



RECORD PAPER & PULP STOCK VALVES "BONNETLESS" SELF CLEARING---"RESIDUE POCKETLESS TYPE"

METALS — I.B.B.M. all iron, bronze or stainless steels, body parts plain or rubber lined.

The photo of 24" Fig. 241 I. B. B. M. valve while illustrating the gate bottom wedge system for forced gate seating and "GUILLOTINE" edge for shearing fibre at seat also shows the packing box and yoke as separate units. Both adjustable.

• The "FAST THREADED" screw stem and ball bearing speeds valve operation.
• The packing box is extra deep, is adjustable and provided with specialized lubricated packings and special type gland and compression bolts.
• The yoke mountings are such that yokes for various methods of gate operation are interchangeable.
• Replaceable gate edge shoes are used in valves 10" and larger. These shoes are of special value when valves are installed stem and pipe horizontal.

"RECORD PRODUCTS EXTENSIVELY USED IN DEFENSE PROJECTS"

RECORD FOUNDRY & MACHINE COMPANY
LIVERMORE FALLS, MAINE, U. S. A.

Supplying Your Requirements

CUT COST

USE PULP SUBSTITUTES

WASHINGTON, D. C.
CAMDEN, N. J.
NEW YORK, N. Y.

THOMAS PAPER STOCK COMPANY
1500 No. Hooker Street • Chicago 22, Ill.

"EXCELSIOR" FELTS

EXCELSIOR KNOX Woolen Co. Camden Me. FELTS & JACKETS

The Trademark of Felts of Superior Quality for Every Grade of Pulp and Paper

KNOX WOOLEN COMPANY
CAMDEN, MAINE

Now...For the First Time in Book Form...

PULP, PAPER AND BOARD MILL MAINTENANCE

This handy, 126 page book belongs in your library. In easy-to-read language it brings you complete procedures for plant maintenance in kraft pulp mills, semi-chemical mills, bleach plants, Fourdrinier machines, cylinder machines, stock preparation equipment, power plants, electrical finishing . . . all other paper and pulping operations.

•

Based on actual in-plant experience and prepared by well-known men in the paper industry, this brand new volume has been edited by John C. W. Evans to fit a definite need.

•

If you are interested in improving maintenance procedures, reducing machine downtime, improving operating conditions and increasing plant efficiency, PULP, PAPER AND BOARD MILL MAINTENANCE points out what to do and how to do it.

Act now to receive a First Edition copy. If not more than satisfied, return book for full refund.

LOCKWOOD TRADE JOURNAL COMPANY, INC.
49 West 45th Street, New York 36, N. Y.

Yes, rush me post-paid a First Edition copy of your just-published book, PULP, PAPER AND BOARD MILL MAINTENANCE at special low price of $2.50

Remittance with order.

Name..... Title.....

Company .....

Address .....

City..... Zone..... State.....

PAPER TRADE JOURNAL CLEARING HOUSE

Help Wanted

Personnel Service Associates
H. M. Grasselt, Mgr.
115 State St., Springfield 3, Mass.
Tel. RE 6-4749

A Placement Service designed to aid Employers and Employes in the Pulp, Paper, Converting and allied industries.

Administrative—Technical—Production
Sales—Executives and Personnel.
Process Personnel M-31

SPECIALTY SALES OPPORTUNITY

Large, fully integrated, nationally known paper manufacturer has unusual opening for experienced specialty salesman with administrative ability and some technical background. This position has definite growth potential and offers excellent opportunity for talented salesman under 45 with ambitions for management career in paper industry. Successful mill sales experience to converters required. MG specialties preferred but not essential. Location in Midwest for selling in Midwest and East. Our employees are aware of this advertisement. Reply in strict confidence to Box 58-92 Paper Trade Journal, giving details of education, employment, salary requirements.

A-7

PAPER CONVERTING MANAGER

Man needed to lead 75-man department of established paper manufacturer. Knowledge of resin and solvent coating processes and equipment desirable, but not essential. Should be young and aggressive with proven leadership ability. Salary will depend on qualifications. Eastern location. Box #58-78, Care Paper Trade Journal. M-31

Paper Mill Superintendent or Paper Mill Manager

Capable of assuming full responsibility together with adequate authority for the operation of a 3 machine tissue mill operating over speed ranges of 1000-2000 FPM.

Must be familiar with the engineering fundamentals of machinery for production of high speed dry crepe as well as good foundation in the maintenance of such equipment. Salary open. Address Box 58-28 care Paper Trade Journal. TF

Help Wanted

PAPER MEN

$5,000 to $50,000

SALES • PRODUCTION • TECHNICAL

Finding and landing **THE ONE BEST JOB** requires sound analysis, careful planning, proper contacts and skillful negotiation. Paper men ourselves, and the only specialists in the world in our particular field, we assist responsible paper men to accelerate their careers by uncovering and developing **THE SPECIFIC SITUATION** that most exactly fits the needs of each individual we serve. If you seek to better yourself, and your performance to date entitles you to our endorsement, we can and will help you. Contact us in absolute confidence for information regarding procedure.

GEO. M. SUNDAY & ASSO.

PAPER PERSONNEL CONSULTANTS
6 E. Monroe Chicago ANdover 3-1970

MECHANICAL ENGINEERS

PAPER MILL ENGINEERS OR M.E.'S WITH SOLID EXPERIENCE IN THE PULP AND PAPER INDUSTRY

Wanted for 2 to 5 years service

in BRAZIL

Must have good knowledge of

PORTUGUESE

This is an unusual opportunity for qualified engineers. A strong background in pulp & paper manufacture is absolutely essential. Send full details, including a résumé and salary requirements, to:

BOX 58-71

c/o PAPER TRADE JOURNAL

Your reply will be treated confidentially.

M-31

PAPER MILL ENGINEER

Qualified to make improvements in the maintenance of paper mill equipment. In reply give education, experience, and salary desired. Mill located in New England. Box No. 58-73 care Paper Trade Journal.

M-31

GIBBS-BROWER CO., INC.

10 Depot Plaza, White Plains, New York
Telephone—Rockwell 1-1130

Mid-West Branch:
400 Washington Building
Madison 3, Wisconsin

West Coast Branch:
5270 East Washington Blvd.
Los Angeles 22, Calif.

HAVE AVAILABLE:

PRINTING PRESSES

1—9" x 12" New Era 2-colors on top also many attachments
1—36" 3-color Rotogravure Press
5—Other multi-color Rotogravure Presses (Details on request)
1—54" 1-color Rotogravure Press
1—49" 1-color Rotogravure Press
1—42" 2-color Rotogravure Press
1—52" 5 color Kidder Master Aniliner Model 5 FR 6
1—48" 6-color Henrich-Cottrell Press. 4-Flexo—2 Rotogravure.
1—42"—4 color Cottrell-Heinrich Flexo, press on 4-color frame, suitable for cellophane & Poly.
1—36" 3-color Flexographic Press
1—31½" 4-Color Heinrich Flexographic Press.
1—31" two color Wolverine Flexo-Printer
1—30" 4 Color Kidder Flexographic Press
1—30" Kidder 6 station Flexographic press
1—26" 4 color Kidder Flexographic.
1—25" 8-Color Flexographic Press.
1—24" 4-color Kohlbach Flexographic
1—24" 4-Color Kidder Celloprinter
1—20" 4 Color "Cohma" Shirt Band Press (Roll to Sheet)

TAILPRINTERS

1—32" 2-color 8 pitch.
1—30" 2-color Dietz 10 Pitch.
1—16" 2-color Potdevin 8 Pitch.

POWER PAPER CUTTERS

Seybolds: 94" Auto Spacer with air table, & Warner Elec. Drive; 41" Seybold Saber; 56" & 64" Precision: 50", 56" & 65"—10Z; 60"-20th Century; 35" and 84" Dayton, 6Z 65" Holyoke, Sheridan: 36" new model, Oswego: 44", 38", & 34", 54" heavy duty.

CAMACHINES

1—82" Model 10-10A
1—72"—10-04 Shear Cut
1—72"—10-5 with water cooled brake
1—62" 26-2A
1—62" 26-3A.
1—60" 40-1-AF.
1—52", & 1—42", Model 24-7.
2—52" Type 9-5
1—50" 26-3A with C.T. & Elec. Eye
1—42" Type 9-5-A Roller Bearing 1500 fpm.
1—42" Type 24-2A
1—42" Model 10-5
1—30", 1—42", 1—62" Type 6

OTHER SLITTERS

1—40" Model B Fales Shear Cut
2—24", 1—30", 1—36" & 1—40" Kidder S.L. Shear cut

MISCELLANEOUS MACHINES

1—24" & 1—60" Ruf Gift Roll Winders
1—52" Parry Liner with Reeves Drive.
1—72" & 1—84" Potdevin squeeze roll waxing mach.
1—68" Shartle & Bevis Waxing machine
1—54" Coating & Gumming Machine, complete—for Kraft paper.
1—48" Asphalt Saturating Machine, complete—for Fibreboard, Felt or Kraft Paper.
1—37" & 1—60" Hot Melt Coaters & laminators.
1—24" & 1—46" Waldron Reverse Coater.
1—19"—3-Color Printer-Waxer for Bread wrap.
1—Knowlton & 1—Langston Tube Winder with Recutter
1—Webendorfer Automatic collating Machine, Model CS-F
1—McKeage Facial Tissue Machine
2—81" Dietz Facial Toilet Tissue Rewinders.
1—81" Hudson Sharp Toilet Converter for both toilet & towels
1—48" Hamblet Sheeter with backstands and layboy
3—Hamblet Sheeters, 42", 84" & 100"
Die Presses: 1—60" x 28", 1—50" x 22" Type UA, 2—17" x 42" Seybolds.
1—2 Web, 1—3 Web Paper Converting Co.'s. Jr. Dispenser Napkin Machines
1—Potdevin Garment Bag Machine, Model 224, Ser. #388. Size 5456-302.
1—Roto Model C Cellophane Bag machine
1—48" Hudson Sharp Embosser-tinter.
1—48" Unicraft Embosser
3—Waldron Embossers; 1—22", 1—46" & 1—60" (latter two heavy duty)

BEATERS
2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54" x 48", cast iron tubs.

CALENDER STACKS
1—3 roll 30" face friction Calender Stack (Holyoke), 2 iron rolls, 1 cotton roll and 1 spare cotton roll.
1—3 roll 84" calender stack.
1—4 roll 72" Calender Stack. (Extra heavy duty).
1—5 roll 82" face.
1—5 roll 86".
1—7 roll, 84" face.

CHIPPERS
1—96" Murray 4 knife Chipper—anti-friction bearings.
1—84" 10 knife Carthage Chipper. Anti-friction bearings.
24—Chipper Knives 15⅞ x 8¼, 2 slot.

CLASSIFINER
1—Dilts Classifiner, practically new.

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
1—Jeffrey Hammermill (18" dia. rotor).

CYLINDER MOLDS
8—36" diameter x 94" face, hollow shafts. Very good condition.
2—30" diameter x 72" face.
1—30" diameter x 92" face.
1—36" diameter x 84" face.
2—36" dia. x 54" base.
2—36" diameter x 110" face.
3—36" diameter x 90" face, 18" diameter couch rolls.
1—60" dia. x 170" face.

DIGESTERS
1—Biggs 12' 6" (Globe).
Write us regarding your requirements.

DISINTEGRATOR
1—Shartle 8" disintegrator with 125 horsepower induction motor.

DRIVES
1—Rice-Barton hypoid enclosed drive, 4 to 1 ratio.
1—#6 Reeves horizontal—anti friction bearings, totally enclosed.
1—#6 Reeves vertical—anti friction bearings, totally enclosed.
1—Sandy Hill right angle 50 H.P. (4.75 to 1)
1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive).
1—#4 Reeves Drive.
2—Waterbury Hydraulic Variable speed line shaft drives (from 40 to 100 H.P.).
3—Rice Barton enclosed drives, double reduction (14 to 1 one end, 4 to 1 other end).
1—Beloit hypoid enclosed drive 60 h.p. 5 to 1 ratio.

DRYERS
1—28" diameter x 84" face.
2—30" diameter x 40" face, with bearings.
2—30" diameter x 48" face, with bearings.
20—36" diameter x 66" face, complete.
60—36" diameter x 84" face, complete with frames, gears & bearings.
4—48" dia. x 52" face with frames, gears, bearings.
1—36" diameter x 44" face.
3—36" diameter x 76" face.
6—36" diameter x 80" face.
22—28" diameter x 40" face with frames, gears and felt rolls.
1—16" diameter x 54" face (steel.)
6—48" diameter x 130" face.
2—Cooling Drums, bronze, 36" x 128", with frames, gears and necessary rolls to make up the unit. (After dryers)

DYNOFINER
"Rice Barton," details on request.

EMBOSSING CALENDERS
1—43" 3-Roll Embossing Calender.
1—45" Meadows 2 roll embosser.
3—62" 2 roll embossers.

EXTRACTOR ROLL
1—Extractor roll, 26" diameter x 104" face.
1—Rice Barton & Fales, Extractor Roll, 26" diameter x 104" face.

FELT CONDITIONERS
1—Scofield, 125" face.
1—Scofield, 154" face.

FELT ROLLS
50—Brass Felt Rolls, with Brass Journals, 72" face x 5" dia.

FLAT SCREENS
1—IMPCO—Dunbar 14 plate, bronze vat.
1—8 Plate "Packer".
1—12 Plate "Packer"
1—16 plate "Packer" late type roller shoes.

HOGS
1—Type 15 CF Mitts & Merrill.

HYDRAFINER
1—Dilts, stainless steel filling, anti-friction bearings, excellent condition.

JORDANS
1—Noble & Wood mammoth.
1—Noble & Wood Monarch.

KNIFE GRINDER
1—Rogers 128" knife grinder.

LABORATORY EQUIPMENT
1—2" Shartle Hydrapulper.
1—36" Somat Pulping Machine.
2—8" x 8" Sheet dryers.
1—12" x 12" sheet dryer.
1—Freeness Tester.
2—Williams Centrifuges.
1—6" diameter Hydraulic Press.
1—Paprex Slowness Tester.
1—8" x 8" Sheet Mould.
1—25 lb. Valley Laboratory Beater, with washer.
1—¾ lb. Laboratory Beater.

LAMINATING MACHINES
2—84" Asphalt laminators.

MISCELLANEOUS
1—#1 Miami Selectrap.

POPE REEL
Write us regarding your requirements.

PRESS ROLLS
2—Chilled iron, chrome plated 9" x 72".
1—Chilled iron, chrome plated 14" x 72".
1—Chilled iron, chrome plated 12" x 100".
1—Chilled iron, chrome plated 10" x 74".
8—sets (1 rubber, 1 chrome steel) 74" face x 15" dia., complete with bearings.

PULLEYS
Various cone and assorted pulleys.

PULPERS
1—36" Somat pulping machine.
Write us regarding your requirements.

PUMPS
1—Morris-10,000 g.p.m. 25 ft. head (all bronze).
1—Shartle Fan Pump, 6,000 gallon per minute with 50 horsepower induction motor.
Various sizes. Centrifugal and Plunger Pumps.

RAG CUTTERS
Write us regarding your requirements.

REELS
1—86" 2 bowl reel.
1—84" 3 bowl revolving reel.
1—100" Rice Barton 2 bowl Reel, heavy duty.
1—123"—3 bowl Revolving Reel.
1—134"—2 drum.
1—72" Dowingtown Reel, 2 bowl.
1—84" 2 bowl (72" diameter rolls).

REFINERS
1—#2 Claflin refiner.

REGULATOR
1—Bird Consistency Regulator.

ROLLS
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS
1—#1A Bird, copper vat.
2—APMEW Rotary Pulp Screens.

SAVEALLS
1—#5 Bird Saveall.
1—LaMorte, 48" diameter x 82" face cylinder mold.

SCREEN PLATES
Bird Rotary screen plates.
Write us regarding your requirements.

SHEETER
1—132" Hamblet heavy duty duplex sheeter,-anti-friction bearings throughout, including layboy and backstand.

SHREDDERS
1—16" "Swift" Paper Shredder.
Write us regarding your requirements.

SLITTERS & WINDERS
1—32" Cameron Type 9.
1—42" Cameron Type 9.
3—42" Cameron Type 6.
1—42" Cameron Type 8.
1—42" Cameron Type 26-2A.
1—42" Cameron Type 26-3A.
2—50" Cameron Type 6.
2—62" Cameron Type 6.
1—62" Cameron Type 10-10.
1—62" Cameron Type 8.
1—72" Cameron Type 6.
1—86" Two Drum Moore & White 50" diameter rewind.
1—96" 4 drum Moore & White winder.
1—120" Moore & White 4 drum winder.
1—128" Shear cut winder, drive and variable speed motor.

SLITTING DEVICE
84"—Quick change slitting device shear cut, complete, practically new.

STEAM JOINTS
18—3" Johnson steam joints (new).

STOCK MAKER
1—Morden Stock Maker.

STOCK PUMPS
1—8 x 18 Shartle Triplex.
1—10 x 20 Shartle Triplex.

SUCTION BOXES
2—150" Stainless steel Suction Boxes.
Write us concerning your requirements.

SUCTION COUCH SHELL
1—Downingtown suction couch shell only, 127½" face x 26" diameter.

SUCTION COUCH ROLLS
1—Beloit, 36" diameter x 246" face, SKF bearings.
1—Sandusky Suction Couch Roll 18" diameter x 98" face.
1—Sandusky Suction Couch Roll 112" face x 22" diameter, including spare shell.
1—Millspaugh, 30" diameter x 154" face, trunnion anti friction bearings.

SUCTION FELT ROLLS
1—Gilbert & Nash 122" face.
1—Beloit Rubber Covered Suction Felt Roll 109" face x 20½" diameter.

SUCTION PRESS ROLL
1—Downingtown, rubber-covered 85" face x 22" diameter (complete with vacuum pumps).

SUPER CALENDER STACK
1—9 Roll 56"

TABLE ROLLS
22—Rubber Covered 10" diameter x 246" face.
30—4" dia. x 130" face (will cut to size).

TANK
1—Solvent Recovery Tank, 21 ft. long x 7 ft. diameter.

THICKENERS
Write us regarding your requirements.

TOILET WINDERS
2—72" Hudson-Sharp (Surface type winder).

TRIMMERS
1—84" Seybold.
Write us regarding your requirements.

TURBINE GENERATOR SET
1—150 kw General Electric.

VACUUM PUMPS
1—#6 Nash hytor.
2—L-8 Nash Vacuum Pumps.
3—#1 Nash Hytor vacuum pumps.
1—#7 Nash Hytor, complete with 75 HP synchronous motor.
3—#4 Nash Hytor vacuum pump.
2—Connersville, 14 x 20.
2—H-7 with motors.

VATS
2—D. J. Murray Co. Vats, iron ends, for 42" x 120" cylinder molds, overflow and counterflow.

VIBRATING SCREENS
2—Hummer electric Vibrating Screens, stainless steel, new.

WET MACHINES
1—72" Wet Machine
2—60" Wet Machines, complete.

YANKEE DRYERS
1—84" diameter x 56" face.
1—140" face x 12' dia. anti-friction bearings & stands.

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurs, Treas.
377 Frelinghuysen Ave.* **Tel—Bigelow 3-3720** **Newark 12, N. J.**

Help Wanted

SALES/PROJECT ENGINEER

WANTED BY LEADING PULP & PAPER MILL EQUIPMENT MANUFACTURER

To cover export markets; stationed in New York; 3-4 annual foreign trips of 4-5 weeks each. Applicant should have technical/chemical background and experience in pulp and paper mill operations.

Knowledge of foreign languages desirable but not essential.

Please submit complete resume of personal background experience and salary expected to:

Box 58-79
c/o Paper Trade Journal
Replies will be held in confidence

A-7

MECHANIC and SET-UP MAN

Fully familiar with all aspects of paper napkin conversion. Must be experienced on Hudson-Sharp and vacuum type paper converter equipment. Capable of making all necessary adjustments and train help.

New Jersey Location.

Address Box 58-85 care Paper Trade Journal.

M-31

Help Wanted

PAPER CONVERTING MACHINERY DESIGNER

Wanted by manufacturer of paper and film bag machinery and printing presses.

Located in pleasant New Jersey community.

Degree not necessary—only the ability and practical background for independent design of converting machinery.

Excellent opportunity for capable man. Salary open.

Please send resume of experience. Box 58-13 care Paper Trade Journal.

TF

SALESMAN

Unusual Opportunity for salesman experienced in pulp and/or in high grade secondary fibres. Replies will be held in strict confidence.

Address Box 58-86 care Paper Trade Journal.

M-31

"HELP WANTED"

EXCELLENT TOP WAGES

3—MACHINE TENDERS
3—BACK TENDERS
3—3rd HANDS

Must be experienced on fourdrinier & kraft paper machines.

Mill located in metropolitan area.

Address Box 58-66 care Paper Trade Journal

M-31

ASSISTANT MASTER MECHANIC

EXCELLENT OPPORTUNITY FOR QUALIFIED MAN IN FULLY INTEGRATED MIDDLE ATLANTIC MILL. SUBMIT DETAILED RESUME OF EXPERIENCE AND INDICATE SALARY REQUIREMENTS IN FIRST LETTER.

WRITE BOX 58-74 CARE PAPER TRADE JOURNAL.

M-31

WANTED—POLYETHYLENE—EXTRUSION-LAMINATION SUPERVISOR

Nationally known manufacturer packaging materials needs thoroughly experienced supervisor polyethylene extrusion-laminating department. Unique career opportunity for man who can take complete charge production and supervise others. Main requirements:

At least 5 years supervisory experience with thorough knowledge machines and materials and proven ability to produce top quality product.

This is chance in lifetime to associate with leading organization in the packaging field. Unlimited opportunities for growth and personal advancement based on performance. Liberal pension benefits—possible stock options to successful administrative personnel. Our employees are aware of this advertisement. Write in strictest confidence all details background, education, experience to Box 58-94 Paper Trade Journal.

A-14

BARGAINS

IMMEDIATE DELIVERY

1—66" Holyoke 9-Roll Super Calender Stack, Complete. Rebuilt and used but a short time, in A-1 condition. Drives and Spare Rolls.

1—128" 8-Roll Bagley & Sewall Calender Stack, king roll 24" dia., 4 intermediate rolls 12" dia., top roll 16" dia. Heavy box frames, full set of doctors. Excellent Condition.

26—36" x 76" Complete Dryer Section, Stack, Drives, Etc.

21—48" x 82" Pusey & Jones Dryer Section.

10—48" x 150" Pusey & Jones Dryers.

1—84" Carthage 10-Knife Chipper. Like new, used less than one year.

1—84" Kamyr Machine, Complete, 75 Ton per day output.

1—85" Waxing Machine. Includes electrically operated wax tank, 85" Squeeze Press, 2 Chill Rolls, 1 Rewind Reed. Practically brand new 15 H.P. Vilter, Model W-1500FH, Freon Compressor, Induction draft cooling tower and circulation pump, also backstands, M.G. Set for D.C. Motor Drive, Etc. Excellent Condition.

3—No. 1 Jones Refiners, Late Type. A.F. Bearings.

1—E. D. Jones Imperial Jordon, S.S. Filling.

1—Noble & Wood Mammoth Jr. Jordon, S.S. Filling.

1—14 Plate Impco Flat Screen, Dunbar Drive, Bronze Vat. Direct Motor Driven.

1—110" Pusey & Jones 2-Drum Winder. A.F. Bearings.

1—Hudson Sharpe Toilet Tissue Converting Machine. Serial No. 2124. 8 Spare Mandrel Bars.

1—25" Dia. x 156" Sandusky Suction Couch. Complete with Bearings and Stands.

1—Trimbey Senior Rotary Screen.

1—No. 6 Nash Hyator Vacuum Pump.

3—10" x 20" Beloit Triplex Pumps.

1—12" x 20" Beloit Duplex Pump.

1—54" Dia. x 48" Face Valley Iron Tub Beater.

2—Impco Rotary Pulp Screens.

2—No. 3 Impco Rotary Knotter Screens. S.S. Plates.

1—Sandy Hill Sulphur Burner. Complete.

5—Press Sections—One each of 76", 82", 84", 110" and 112".

1—Tugboat Annie Pulper.

1—No. 244 Mattison 18" Gore Cutting Saw —5 H.P. 3450 RPM, 3/60/220-440 volt. Complete with Conveyor.

1—90 H.P. Terry Turbine. Type G-4000/1000 RPM. For Paper Machine Drive. Complete.

1—No. 2 Jones Pulper. A.F. Bearings. Spare Worm.

1—36" Putman H.D. Lathe—15' Centers.

1—24" x 6' Lodge & Shipley Geared Head, H.D. Machine Lathe, Taper Attachment, Hollow Spindle, Motorized.

Gear Reducers, P.I.V. Drives, Gearmotors, B.B. Pumps, Stock Pumps, Plunger Pumps, Etc. 1000 Electric Motors from ¼ H.P. to 600 H.P. in Stock.

The above is but a small part of the inventory we carry. We can furnish you with almost anything in the line of paper mill, electrical and machine shop equipment.

We also have a large inventory of new and used flanged fittings of all types at very low prices.

Write—Wire—Phone For Your Needs

RUDERMAN MACHINERY EXCHANGE
GOUVERNEUR, NEW YORK
Telephone 333-334

TF

Help Wanted

COATING CONSULTANT

Large paper machinery builder in Middlewest desires well qualified coating man to act as coating consultant to the company and to head up coating development program.

Man must have excellent technical background and experience. Salary open—please contact Director of Personnel—Beloit Iron Works, Beloit, Wisconsin.

M-31

EXPANDED OPPORTUNITY FOR ADMINISTRATIVE AND EXECUTIVE PERSONNEL

Leading national manufacturer of packaging materials will employ several superior men with proven managerial experience to participate in management of current operations and assist in aggressive expansion. Successful applicants will work directly with top management as associate or assistant in one or more of several fields, including sales, production, product development and general administration.

Experience in flexible packaging preferred but not essential.

In addition to unique opportunity for personal progress in the growing packaging industry, company offers exceptionally broad retirement benefits plus stock options for key members of management group.

Minimum qualifications:

(A) Proven record of achievement;
(B) Stable employment background;
(C) Minimum current earnings $12,000 per year.

Send full resume and personal history—but only if you meet these qualifications—to Box 58-72 Paper Trade Journal. All replies held in strictest confidence. Interviews with executives promptly arranged. M-31

Situations Wanted

MFG. EXECUTIVE AVAILABLE

Experienced Pulp and Paper Operator with outstanding record of achievement in reducing manufacturing costs and improving quality. Technically trained, good organizer. Experienced with all types of pulps and a wide variety of papers. Interested in a challenging opportunity. Excellent references and resume available. Inquires solicited. Reply Box 58-93 Paper Trade Journal.

A-14

MECHANICAL ENGINEER

With 12 years technical and administrative experience in engineering, construction and paper mill operations. Successful and proven record for aggressive engineering application on production problems. Seeks greater opportunity for advancement with an expanding company. Address Box 58-80 care Paper Trade Journal. M-31

Manager or General Superintendent Available

Experienced with fast machines—expert on stock preparation. Qualified on book—offset—groundwood, technical & light weight specialties. Engineer trained—Know maintenance & costs—Presently employed—Address Box 58-87 care Paper Trade Journal. A-21

Situation Wanted

PRACTICAL PULPING AND REFINING specialist with technical background. Wide experience in semichemical and groundwood pulping methods. 18 years as service and development technician to the paper industry. Samples of work are available upon request. Address Box 58-68 care Paper Trade Journal. M-31

Wanted

WANTED

USED

LIME SLUDGE BURNING

ROTARY KILN

Must be complete with all auxiliaries and guaranteed in first class condition. Please state size, capacity, location, make, price ready for R.R. shipment, and all other pertinent details. Address box 58-91 care of Paper Trade Journal.

A-14

WANTED—To purchase a good used electricall operated Mullen Tester Gauge 0 to 40. State price and condition. Also set of 60" beater bars for Niagara bandless beater, send pencil sketch. U. S. Paper Mills, Inc., Chambersburg, Pa. A-7

WANTED—Roll Wrapping Machine for 9" diameter rolls. Address Box 58-88, care Paper Trade Journal. A-21

WANTED: One Potdevin Model 101 Machine
One Potdevin Model 102 Machine
for Flats and Squares.
Address Box 58-82 care Paper Trade Journal M-31

POLYETHYLENE EXTRUDER-LAMINATOR

Will purchase for cash top quality polyethylene extruder-laminator. Must be in excellent operating condition, 54" to 74" width, with all necessary parts and supplies. Send full details including price, hourly capacity, and pictures, if available, to Box 58-95 Paper Trade Journal.

A-14

Wanted

WANTED

Industrial concern desires to buy the following used paper laboratory equipment if in good condition:

Laboratory Beater, 1½# — preferably a Valley, Noble & Wood or equivalent with weight adjustable roll setting.

Mullen Tester—motor operated.

Tear Tester—Elmendorf.

Please address full particulars to Box 58-84 care Paper Trade Journal.

A-7

Consulting Service

OPERATING CONSULTING SERVICE

We supply the know how after the erection engineers have completed their work.

Write Box #58-47, care Paper Trade Journal.

M-31

For Sale

FOR SALE: One (1) Model 4 Potdevin Sack Machine. Excellent Condition. Address Box 58-81 care Paper Trade Journal. A-7

Pipe STEEL Tubing

Valves and Fittings
• STAINLESS • CARBON • ALLOYS
All Types—All Sizes
Heavy Walls—Unusual Sizes
Carbon Steel Tubing For Rolls
Finished & Unfinished Hollow Forgings
Write For Stock List

Midcontinent Tube Service, Inc.

2120 Lee St., Evanston, Ill.
DAvis 8-4030 TWX Evanston 2276 M-31

REBUILT — GUARANTEED NASH VACUUM PUMPS

In Stock, following sizes:
H-10, H-7, H-6, L-5, L-4, TS-7, #4, #2

BRILL EQUIPMENT COMPANY

2401 Third Ave., New York 51, N. Y.
Cypress 2-5703 M-31

FOR SALE

Taylor-Stiles Cutters
1—#112, 1—#218, 2—#230
Also good used machines.
Address Box 58-90
care Paper Trade Journal A-7

WANTED—POLYETHYLENE EXTRUSION BUSINESS

AAA-1 nationally known manufacturer packaging products wants to purchase established polyethylene extrusion-laminating business. Interested in first-class equipment and have openings for qualified production personnel at all levels. Can absorb total assets or polyethylene equipment and personnel only, as preferred. Variety of payment possibilities available to seller's advantage. Submit full details, with detailed specifications of equipment and personal history resumes of personnel available in strictest confidence to Box 58-96 Paper Trade Journal. Personal discussions arranged with principals on short notice.

A-14

INDEX TO ADVERTISERS

PAPER TRADE JOURNAL

A

Adell Chemical Co. ..... —
Albany Felt Co. ..... Facing 34
Allied Chemical & Dye Corp. —
Allis-Chalmers Mfg. Co. 8-9
Aluminum Co. of America ... —
American Bitumuls & Asphalt Co. ..... —
American Cyanamid Co., Dyes Dept. ..... —
American Cyanamid Co., Organic Chem. Div., ... —
American Cyanamid Co., Pigments Dept. 12
American Paper & Pulp Co. ... —
American Potash & Chem. Corp. —
American Steel & Wire Co. ... —
Ames Company ..... —
Anglo Paper Products Ltd. 11
Antara Chemicals, Sales Div. Gen. Aniline & Film Corp. .. —
Apmew, Inc. ..... —
Appleton Machine Co., The ... —
Appleton Wire Works ..... —
Appleton Wood Products Co. .. —
Armco Drainage & Metal Products ..... —
Armco Steel Corp. ...Third Cover
Armstrong Machine Works .... —
Arnold Hoffman ..... —
Asten-Hill Mfg. Co. ..... —
Aurora Pump Div., N. Y. Air Brake ..... —

B

Babcock & Wilcox Co. ..... —
Bahr Bros. Mfg. Co. ..... —
Bailey Meter Co. ..... —
Baltimore & Ohio R. R. ..... —
Bauer Bros. Co. ..... —
Beloit Iron Works Co. ..... —
Bird Machine Co. 17
Bixby, R. W., Inc. ..... —
Black-Clawson Co. ..... —
Blaw-Knox Company ..... —
Bolton & Sons 3-4-13
Borden Co. ..... —
Bowsher Co., N. P. ..... —
Brandon Sales, Inc. ..... —
Broughton, A. E. & Co. ..... —
Brown Company ..... —
Buckeye Cellulose Corp. ..... —
Buell Engineering Co. ..... —
Buffalo Forge Co. ..... —
Buffalo Pumps, Inc. ..... —

C

Cady E. L., & Co. ..... —
Cambridge Instrument Co. .... —
Cameron Machine Co. ..... —
Capitol Products Corp., Read Standard Div. ..... —
Carthage Machine Co. ..... —
Central National Corp. ..... —
Chicago Bridge & Iron Co. .. —
Ciba Company ..... —
Cities Service Oil Co. ..... —
Clark-Aiken Company .. —
Classified Advertising ..... —
Clearing House ..... —
Cleveland Crane & Engrg. Co. —
Cleveland Worm & Gear Co. —
Colonial Plastics Mfg. Co. ..... —
Columbia Cellulose ..... —
Columbia-Geneva Steel Div., U. S. Steel Corp. ..... —
Columbia-Southern Chem. Corp. Sub. of Pittsburgh Plate Glass Co. .....between 18-19
Combustion Engrg. Co. ..... —
Consolidated ..... —
Corn Products Sales Co. ..... —
Crane Co. ..... —

D

Davis, Frank H., Co. Inc. ... —
DeZurik Shower Co. ..... —
Diamond Alkali Co. ..... —
Dicalite Div., Great Lakes Carbon Corp. 10
Dierks Paper Co. ..... —
Dilts Machine Works ..... —
Dixie Bearings Div. of Bearings, Inc. ..... —
Dodge Mfg. Co. ..... —
Dorr-Oliver ..... —
Dow Chemical Co. ..... —
Dow Corning Corp. ..... —
Dowell, Inc. ..... —
Draper Bros. Co. ..... —
Dryden Paper Co. Ltd. 11
du Pont, E. I., de Nemours & Co. Dyestuffs Dept. 6
du Pont, E. I., de Nemours & Co., Electrochemical Dept. Facing 26
du Pont, E. I., de Nemours & Co., Pigments Dept. ..... —

E

East Texas Pulp & Paper Co. —
Eaton Manufacturing Co. ... —
Ebasco Services, Inc. ..... —
Egan Frank W., & Co. ..... —
Elixman Paper Core Co. 43
Elliott Company ..... —
Elwell Parker Elec. Co. ..... —
English China Clays Sales Corp. 44

F

FabriValve Company ..... —
Fairbanks, Morse & Co. ..... —
Falk Corporation ..... —
Farrel-Birmingham Co., Inc. ... —
Ferguson, A. K. ..... —
Fife Manufacturing Co. ..... —
Fitchburg Screen Plate Co. ... —
Foxboro Co. ..... —
Frederick Iron & Steel Co. ... —
Freeport Sulphur Co. ..... —

G

Gaspesia Sulphite Company Ltd. —
Gates Rubber Company ..... —
Garden City Fan Co. ..... —
Garlock Packing Co. ..... —
Geigy Dyestuffs Div., Geigy Chemicals Corp. ....Front Cover
General Dyestuffs Co. ..... —
General Electric Co. ..... —
General Tire & Rubber Co. ... —
Gibbs-Brower Co. 46
Gilbert & Nash Co. ..... —
Glidden Company ..... —
Goodrich Industrial Prod. Co. . —
Goodyear Tire & Rubber Co. —
Gottesman & Co. ..... —
Graton & Knight Co. 43
Graver Tank & Mfg. Co. ..... —
Grinnell Co., The ..... —
Gulf Oil Corporation ..... —
Gulf States Paper Corp. ..... —
Gurley, W. & L. E. ..... —

H

Hagan Chemicals & Controls Corp. ..... —
Hamblet Machine Co. ..... —
Handling Devices Co. ..... —
Harbison-Walker Refractories . —
Harris-Seybold ..... —
Hendrick Mfg. Co. ..... —
Hercules Powder Co. ..... —
Hooker Electrochemical Co. Facing ..... —
Huber, J. M., Corp. ..... —
Hudson Sharp Machine Co. ... —
Hungerford & Terry, Inc. ..... —
Huyck, F. C. & Sons 35

I

Improved Machinery, Inc. .....Facing 35
Ingersoll-Rand Co. ..... —
International Wire Works .... —

J

Jenkins Brothers ..... —
Johns-Manville Corp. ..... —
Johnson Corp. The ..... —
Johnson, Alvin H., & Co. 41
Jones, E. D., & Sons Co. 34

K

Kalamazoo Tank & Silo Co. .. 42
Kamyr Inc. ..... —
Kidder Press Co. ..... —
Knox Woolen Co. 45
Koppers Company 38

L

Langston, Samuel M., Co. .....Back Cover
Link-Belt Co. ..... —
Lockport Felt Co. ..... —
Lockwood Greene Engineers .. —
Lodding Engineering ...Facing 18
L. O. F. Glass Fibres Co. ... —
Lukens Steel Co. ..... —
Lummus Cotton Gin Co. ..... —
Lunkenheimer Co. ..... —
Lyddon & Co. ..... —

M

Magnus Metal Co. ..... —
Magnaflux Corp. ..... —
Main, Charles T., Inc. 40
Manchester Machine Co. ..... —
Master Builders Co. ..... —
Mead Pulp Sales, Inc. ..... —
Merrick Scale Co. ..... —
Minneapolis-Honeywell Mixing Equipment Co. 14
Monsanto Chemical Co. Plastics Div. 60
Moore & White Co. ..... —
Morden Machines Co. ..... —
Mt. Hope Mchy. Co. ..... —
Mt. Vernon Mills Inc. ..... —
Murray, D. J., Mfg. Co. ..... —

N

Nash Engineering Co. ..... —
National Aluminate Co. 4
National Lead Co., Magnus Metal Div. ..... —
National Starch Products, Inc. 22
National Tube Div., U. S. Steel Corp. ..... —
Nelson Company ..... —
New Jersey Zinc Co. ..... —
Nichols Eng. & Research Corp. —
Noble & Wood Mch. Co. ..... —
Nopco Chemical Co. ..... —
Northeastern Paper Sales 11
Northwest Paper Co. ..... —
Norton Co. ..... —

O

Oakite Products, Inc. ..... —
Ohio Injector Co. ....Second Cover
Osborne Paper Mill Equipt. Corp. ..... —
Orrfoit Co. ..... —

P

Paper Converting Machine Co. —
Parsons & Whittemore 45
Patterson Fd. & Mch. Co. ..... —
Penick & Ford, Ltd. ..... —
Pennsalt Chemicals Corp. ... —
Perkins, B. F., & Sons, Inc. .. —
Perkins Goodwin Co. ..... —
Personnel Service Associates .. 46
Pioneer Paper Stock Co. ..... —
Pittsburgh Piping & Equip. .... —
Poirier Control Co. 61
Potdevin Machine Co. ..... —
Powell Valves ..... —
Price P. Pierce, Ltd. ..... —

R

Railway Supply & Mfg. Co. ... —
Raymond, Chas. P. Service, Inc. ..... —
Rayonier, Inc. ..... —
Read Standard Div., of Capitol Products Corp. 39
Record Fdy. & Mch. Co. 44
Red Ray Mfg. Co. ..... —
Restigouche Corp. 65
Rice Barton Corp. ..... —
Riedel, Gus & Son ..... —
Riegel Paper Corp. .. .. —
Rohm & Haas Co. ..... —
Ronningen-Petter Co. ..... —
Roots-Connersville Blower Div. —
Roosevelt Paper Co. ..... —
Ross, J. J. Co. 47
Ross-Midwest Fulton Co. 7
Ross Paper Machinery Co. ... —
Ruderman Machy. Exchange .. 48
Rust Engineering Co. 40
Ryerson, Jos. T. & Son ..... —

S

Sandoz Inc. ..... —
Sandy Hill Iron & Brass Works ..... —
Scapa Dyers Inc. ..... —
Seaboard Air Line R. R. Co. —
Shartle Div., Black-Clawson Co. ..... —
Shawinigan Resins Corp. .... —
Sheffield Corp. ..... —
Shell Chemical Corp. ..... —
Shuler & Benninghofen ..... —
Signode Steel Strapping Co. .. —
Simplex Wire & Cable Co. ..... —
Sirrine, J. E., Co. ..... —
Smidth, F. L., & Co. ..... —
Soderhamn Mch. Mfg. Co. .... —
Sonoco Products Co. ..... —
Southworth Machine Co. ..... —
Spraying Systems Co. ..... —
Sprout Waldron & Co. ..... —
Stadler Hurter & Co. ..... —
Staley Mfg. Company ..... —
Stanley Works ..... —
Stebbins Engrg. Co. ..... —
Stein, Hall & Co. ..... —
Stone & Webster Engrg. Corp. —
Stowe-Woodward, Inc. ..... —
St. Regis Paper Co. ..... —
Sunday, Geo. M., Assoc. 46
Swenson Evaporator Co. ..... —
Swepco Tube Corp. ..... —

T

Taylor Instrument Co.s 13
Taylor Stiles & Co. ..... —
Tennessee Coal & Iron Co. .. —
Tennessee Corp. ..... —
Testing Machines ..... —
Texas Co. ..... —
Texas Gulf Sulphur Co. ..... —
Thiele Kaolin Co. ..... —
Thomas Paper Stock Co. 45
Titanium Pigment Corp. ..... —
Toledo Scale Corp. ..... —
Torrington Co. ..... —
Towmotor Corp. ..... —
Trent Tube Co. ..... —
Turner Halsey Co. ..... —
Tyer Rubber Co. ..... —

U

United Carbon Co., Inc. 44
United Engrg. & Fdy. Co. .... —
United Paper Machinery Corp. —
U. S. Industrial Chem. Co., Div. of National Distillers & Chem. Corp. ..... —
U. S. Rubber Company Second Cover
United States Steel Export .....Facing 19
United States Steel Supply Co. .....Facing 19
U. S. Steel Corp. .....Facing 19

V

Valley Iron Works ..... —
Vanderbilt, R. T., Co. 14
Virginia Smelting Co. ..... —

W

Waldron, John, Corp. ..... —
Wallace & Tiernan Inc. ..... —
Walworth Co. ..... —
Weber, H. G., & Co. ..... —
West End Chemical Div. Stauffer Chem. Co. ..... —
Westvaco Chlor-Alkali Div., Food Mchy. & Chem. Corp. —
Westinghouse Elec. Corp. .... —
West Virginia Pulp & Paper Co. 44
Weyerhaeuser Timber Co. ..... —
Whiting Corp. ..... —
Wiggins Teape & Alex Pirie —
Williams Apparatus Co. ..... —
Williams-Gray Co. ..... —
Wisconsin Wire Works ..... —
Worthington Corp. ..... —
Wyandotte Chem. Corp. ..... —
Wyatt Metal & Boiler Works —

Y

Yale & Towne Mfg. Co. ..... —
Yarnall-Waring Co. ..... —

Z

Zellstofffabrik Waldhof 57

While we strive for accuracy in preparing the above index which is purely a service to our readers, we cannot be responsible for errors.

BUSINESS STAFF

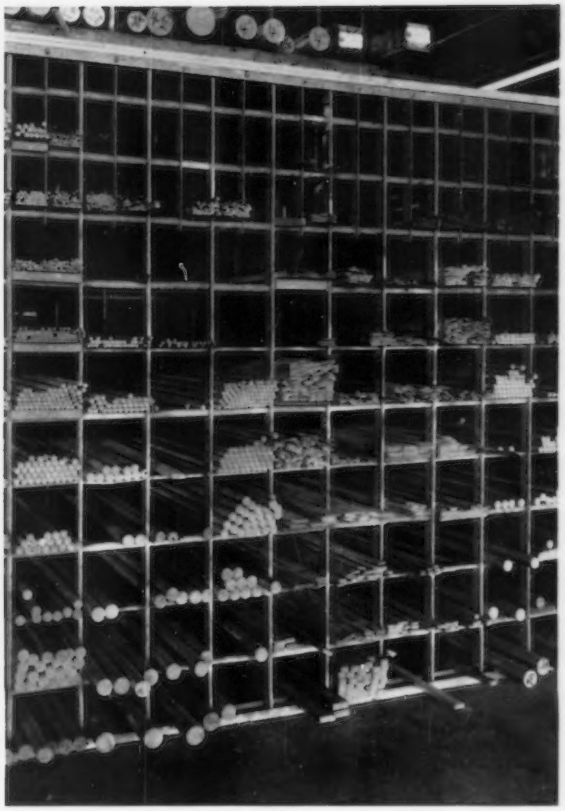
Arthur E. Gordon, Business Mgr.
Francis J. Gordon
49 West 45th Street, New York 36, N. Y. Plaza 7-2370
H. K. Vinton
CHICAGO 3, ILL.: Room 1020, 79 West Monroe St. CEntral 6-2784

Frederick B. Grosse Production Mgr.
Alrick Man
49 West 45th Street, New York 36, N. Y. Plaza 7-2370
H. L. Poulton
PITTSBURGH, 11, PA.: 610 Pennridge Road. Hemlock 1-1571

McDonald-Thompson Company
SAN FRANCISCO, CAL.: 625 Market St. YUkon 6-0647
LOS ANGELES, 5, CAL.: 3727 West Sixth Street. DUnkirk 7-5391
DENVER, 2, COLO.: 222 Colorado Nat'l Bank Bldg. KEystone 4-4669
SEATTLE, 4, WASH.: 1008 Western Ave. MA 3-766
PORTLAND, 1, ORE.: 912 S. W. Market St. CA 2-5146
HOUSTON, 6, TEXAS: Room 214, 3217 Montrose Blvd. JAckson 9-6711
TULSA 4, OKLAHOMA: 2010 So. Utica RIverside 3-1981
MIAMI, FLORIDA: Hal Moore, Printup & Assoc., 1006 Langford Bldg. Phone:—FRanklin 9-2668, Herbert Morgenbesser Kohlgarten 3 Hamburg—F. U., Germany
Publishing & Distributing Co., Ltd. 177 Regent Street London W 1, England

HUGHES PRINTING CO.
EAST STROUDSBURG, PA.

Here's "One-Stop Shopping"
for All your stainless steel needs



Stainless steels in stock—ready to be rushed to your plant.

When you or your equipment supplier need stainless steel, it will pay to call your nearest Armco Distributor. His Steel Service Center is a veritable supermarket for these special steels.

Independent Armco Distributors stock most standard grades and sizes for immediate delivery. In addition, through Armco's mills, they can draw on one of the widest ranges of stainless grades, sizes, and shapes in the industry. Your special requirements can be met from the mill without delay.

SPECIAL SERVICES

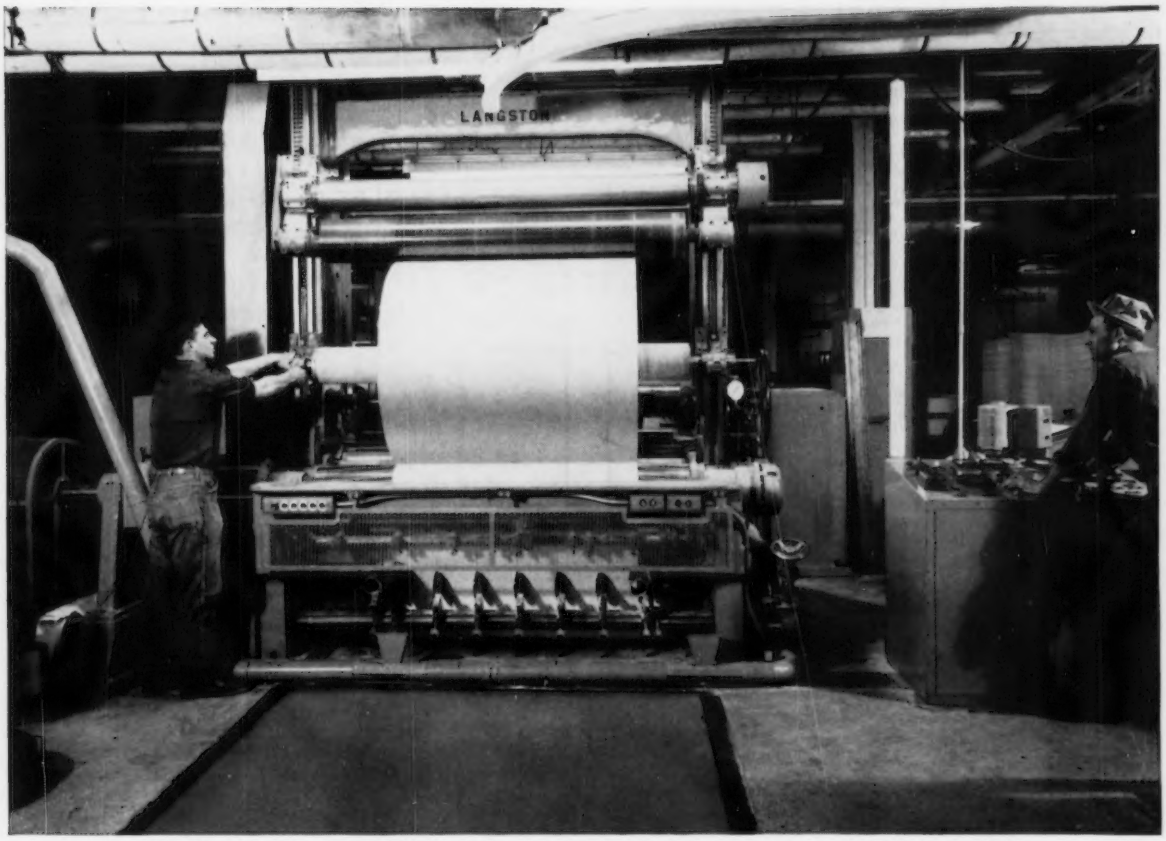
Most Armco Distributors are prepared to cut your stainless to the size you need. This speeds up your fabricating operations and reduces scrap handling costs. Their salesmen are mill-trained to assist you in selecting grades and fabricating methods.

A phone call to an independent distributor of Armco Stainless Steels is all that's needed to rush your order on its way. If you don't know his name, just write us at the address below.

ARMCO STEEL

ARMCO STEEL CORPORATION • 1838 CURTIS STREET, MIDDLETOWN, OHIO

SHEFFIELD DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION



New 72-inch Type CA Langston Slitter and Winder in Marathon Corporation finishing room handles rolls up to 60 in. in diameter at speeds up to 1500 ft. per minute. Finished rolls are lowered by hydraulic drop shown in foreground.

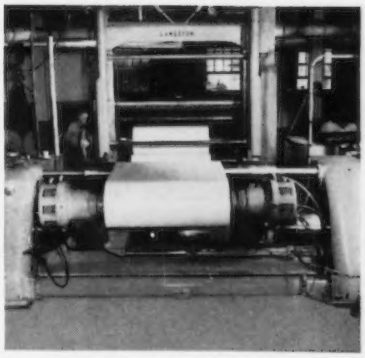
New Langston Slitter and Winder helps Marathon cut operating costs

This new Langston Slitter and Winder installation at Marathon Corporation's Rothschild, Wis., mill is already helping the company cut costs and speed processing of quality paper and board.

For example, the power-operated shaftless unwind stand virtually loads itself. No crew is needed to bull heavy shafts into place. And the Langston hydraulic roll ejector permits 1-man removal of finished rolls. These two features alone are saving Marathon several thousand dollars a year. Water-cooled Wichita-type air brakes can be operated from control console.

Besides effecting major operating economies, these Langston machines also pay off in higher quality rolls. The hydraulic rider roll control, for instance, automatically keeps nip pressure constant, regardless of the diameter or weight of the rewound roll. This insures rolls of uniform density with reduced tendency toward wrinkling or telescoping. The shear-cut slitters cut like scissors instead of a knife, shearing cleanly and keeping paper dust to a minimum. The resulting clean-edged, dustfree rolls are easier for customers to process.

Learn how you can benefit from the advantages of Langston Slitters & Winders. Write SAMUEL M. LANGSTON Co., 6th & Jefferson Sts., Camden 4, N.J.



Langston Shaftless Unwind Stand eliminates the time-consuming, back-breaking task of hoisting heavy shafts into place. The hydraulically actuated arms reach out, pick up the roll and lift it to running position—a 1-man, push-button operation.

LANGSTON *Leadership...by design*